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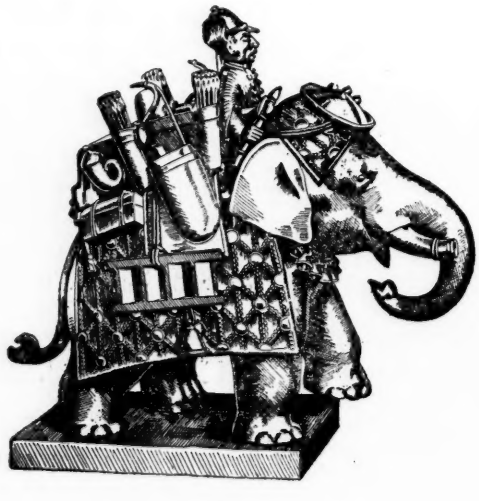

ARMOUR-CLAD ELEPHANT FROM SOUTHERN INDIA. This reproduction of an eighteenth century brass figure shows the body of the elephant protected by a coat, probably of leather, padded and quilted, and studded with brass nails and bosses. His head is provided with a circular steel frontlet to protect it from the spikes which were placed upon the gates of fortified towns to prevent their being battered by elephants. At each corner of the howdah is a quiver of arrows for the use of the warrior; a bow is also attached. A firearm is seen at the back with a powder horn near by. The chest no doubt contains ammunition. The mail-clad driver carries an elephant goad. The shafts of these instruments were sometimes hollow and contained tiny bells which rolled up and down with the movement of the goad. In Akbar's time elephants carried archers and musketeers, but after him the practice declined, though elephants continued to be brought into the battlefield to carry the general and great nobles in order that they might be seen at a distance by all their troops. As late as 1718 and 1720 they were used to carry small cannon.

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Observations
ON
THE NATURE AND SYMPTOMS OF CARDIAC INFECTION IN CHILDHOOD.

BY
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IV.—MYOCARDITIS, OR NEURO-MUSCULAR CARDIAC AFFECTIONS.*

THIS section undoubtedly contains the most difficult clinical cases of rheumatic heart disease, for the structure of the myocardium is more complex than that of the pericardium or endocardium, and the physical signs that point to its injury are more difficult to appreciate.

A brief allusion to the pathological changes will be helpful in illustrating these points. In general terms we have to consider the *muscular tissue* of the heart wall and the *fibrous framework* in which it is set—which contains blood vessels, lymphatics and nerves. An objection to the term "myocarditis" is that rheumatism may damage the muscle fibres without producing any degree of inflammation, for experiment shows that a virulent infection may produce fatty change in the muscular fibres, and yet no evidence of inflammatory changes be forthcoming in the connective tissue framework. On the other hand, there is no doubt that myocarditis may also occur and be followed, as in other organs, by a fibrosis. The minute focal lesions in the interstitial tissues I described and showed at a meeting of the Royal Medical and Chirurgical Society in 1899, and, later, under the name of Aschoff's nodules, they received general attention. I am not prepared, however, to go to the length that some have gone who hold that it is essential to show the presence of these nodules in order to prove the rheumatic nature of a myocarditis. I look upon them as a particular phase of infection which is frequent in the rheumatic because the lesions do not, as a rule, cause suppuration, but it is possible, nevertheless, for a case to be rheumatic and these nodules not to be demonstrable. In the more chronic forms of myocarditis a perivascular fibrosis will be seen in the region of the small blood vessels. Should these local foci of change affect the regions of the auriculo-ventricular bundle it will be apparent that special disturbances will occur, and unduly irritable areas of cardiac tissue may be produced in their neighbourhood. Extensive fibrosis is, however, much more suggestive of cardiac syphilis than rheumatism.

The areas of fatty degeneration in the cardiac muscle in virulent rheumatism I pictured in the *Lancet* in 1900, and later, with Paine, demonstrated the experimental production. Thus both the two cardinal changes have been established, and are, I think, generally accepted as occurring in so-called rheumatic myocarditis; and, further, cardiac research also points to our attaching importance to both types of lesion. The changes are, then, complex, and the clinical symptoms are also complicated, and, as stated above, in this group we meet with some of the most difficult problems in heart disease. One fact stands out: we have to rely much upon symptoms because of the lack of such signs as pericardial friction and valvular bruits. Experience also shows that in this group we meet even in childhood with nervous disturbances which are apt to be embraced in the dangerous term of functional, and which are likely to cause confusion. It is in this group that we look in the future for great assistance from the modern methods of cardiac observation, but patience is very needful in an inquiry of such difficulty.

Numerous investigations have been made in the last ten years, and an analysis of these shows that transitory heart-block, auriculo-ventricular extrasystole, auricular fibrillation, auricular tachysystole, and paroxysmal tachycardia, have all been observed, and in some instances autopsies have been made which have proved the presence of myocarditis. Paul White, in 1916, described a case in an adolescent of 18 years in which heart-block was the first indication of a rheumatic attack; but this must be, I believe, a remarkable event. The building of observations of these phenomena into the practical structure of clinical medicine must be a gradual process. One general impression that appeals to me is that as a rule these disturbances are transitory in childhood, and have less practical significance than some other factors already well known. The interpretation I have ventured to put upon this impression is that the damage to the muscular fibres is of greater significance than that of the interstitial tissues in this early rheumatism. The interstitial lesions, if they occur in connexion with the auriculo-ventricular bundle, will undoubtedly cause various disturbances in rhythm, dependent upon their site, but the parenchymatous changes weakening the muscle must also give rise to symptoms which are of greater importance, unless the interstitial lesions are exceptionally severe. In other words, I believe that in childhood the muscle of the heart suffers more in proportion in rheumatic heart disease than do the fibrous tissues.

A. *Acute Fatal Dilatation.*

These fulminating cases are very rare, but both theoretically and pathologically they are of particular interest because they show the possibility of death from myocardial disease alone, and are important evidence of the infective nature of the disease. In two cases I have seen, the damage to the myocardium of the right ventricle over a small area was so great that no tissue was left between the blood and the visceral pericardium, which had yielded from the strain into a small aneurysm; the rest of the ventricular wall was grossly diseased.

Fatal acute dilatation presents a clinical picture of death from cardiac asystole. The pulse is rapid and running, the cardiac sounds are faint, short, and approximated; the cardiac dullness is much increased, and no definite impulse is visible. The face is ashen grey; there is intolerable restlessness, with vomiting, rapid breathing, and extreme muscular feebleness. The liver rapidly enlarges; there is pulmonary oedema, and some moderate oedema of the lower extremities. The temperature usually rises in the early part of the illness, but may become subnormal before death, which is eventually sudden. There is no reaction to remedies for combating the rheumatic toxaemia, or for supporting the heart.

B. *Subacute and Chronic Dilatation of the Heart.*

This group, I venture to think, requires more attention than it has received in childhood, for I believe it to be an important cause of "weak hearts" in young adults, and to form one section of the group of cases which later is so difficult to deal with in connexion with military service.

The usual course of such a case is as follows: A child has a definite but not severe attack of acute rheumatism, and the heart is found to be dilated, and a mitral lesion is suspected. The heart remains enlarged, the murmur disappearing or becoming apparent on exertion. The child is pale and languid, short of breath on exertion, and easily fatigued. The pulse is rapid and easily influenced by movement and emotion. Fainting attacks may occur in a close atmosphere. There is nervousness, and there may be complaint of palpitation.

Such a condition is very stubborn and requires great patience in its management. If there is over-exertion the symptoms rapidly increase and any ground that has been gained will be lost and recovered with difficulty.

Should the dilatation be overlooked there is obviously great danger of missing the true meaning of this lesion. We must recognize the rapid feeble action of the heart, poor first sound and general circulatory feebleness, and ascertain the presence of the usual signs pointing to cardiac dilatation.

Subacute dilatation appears to me to be not at all uncommon in adolescents and adults who have had acute rheumatism in childhood, and produces the following results: When these individuals are able to go at their own pace and do a moderate amount of physical or mental work in the day they appear to be normal beings, but when they are put under pressure, and more particularly continuous pressure, their hearts become irritable and their nervous and digestive systems begin to fail. They behave precisely as children do when overstrained during convalescence from a subacute rheumatic dilatation.

Again, where this dilatation occurs in adolescence a very unsatisfactory condition may result, in which the nervous

* Articles I, II, and III were published in the JOURNALS of March 2nd, April 13th, and July 6th.

symptoms become predominant, and extreme examples, more frequent in my experience in females, may result in invalidism of the most trying kind.

Exceedingly emotional and unbalanced, they are troubled by severe palpitation and syncopal attacks complicated with nerve storms. An unusual exertion or severe emotion will bring on attacks of great severity with pain, tachycardia, and nervous disturbances that alarm all around them. In bed, carefully nursed and dieted, they become quiet and happy, and the heart improves; but when they return to daily life and attempt any useful occupation a relapse is almost certain. No one will doubt that there is a very large functional element in such cases, but those who have studied them must be equally convinced that there is some organic neuro-muscular fault which dates from the attack of rheumatism and probably represents, if we only knew the truth, some specific effect of the disease upon patients of a peculiar constitution. I am convinced of this, that it is quite useless to treat such cases as entirely functional, for there is conclusive clinical evidence that physical over-fatigue will at once produce alarming symptoms of cardiac disturbance.

In some cases frequent attacks of cardiac pain occur which suggest angina pectoris, and during which the pulse may either be much increased in rate or hardly at all altered. These attacks are not peculiar to simple cases of dilatation, but also occur in patients suffering from mitral and aortic lesions, and one such case was of a particular interest because it illustrated the flux of opinion of the many observers who saw the girl.

At first, the patient having aortic disease, the attacks were looked upon as certainly anginal; later they were thought to be largely functional, and finally they were looked upon as entirely functional. Treatment adapted to the last hypothesis resulted in decided improvement, but eventually this patient died in an attack brought on by a fit of temper. The necropsy showed no obvious disease of the aorta itself and no condition of the heart unlike that which is met with in a fatal aortic disease in which no anginal symptoms have occurred. This patient had suffered from hundreds of these attacks in eighteen months.

It is difficult to escape from the view that a vasomotor disturbance was an important factor, particularly when we bear in mind the remarkable Raynaud conditions of the hands that may follow an acute attack of rheumatism, examples of which I published in the *Lancet* in 1914.

I have followed a considerable number of cases of chronic dilatation in childhood through several years and believe that they eventually recover, though I do not feel sure that this recovery means a true restoration of complete cardiac vigour.

This group concludes the cardinal lesions with which space permits me to deal. The final stages of rheumatic heart disease are the eventual results of one or more of these lesions, themselves the results of recurrent carditis, and though a knowledge of the terminal stages is of practical value no new principles are involved and their clinical study is frequent in our hospitals. Unusual events, such as multiple serositis and extreme pericardial adhesions, cannot claim consideration here, for my chief purpose has been to try to illustrate how valuable an introduction to cardiac disease is a careful study of infective heart affections in childhood, and to indicate how clearly such a study points to the prevention of their occurrence, or arrest of their advance in the early stages.

PROGNOSIS.

There can be no doubt, I think, that the study of rheumatic carditis as an infective disease helps us very considerably in prognosis, for not only do we learn much from a study of its life-history, but we are led to take the essential view in such questions—the outlook as it concerns the child's life and future rather than the narrower consideration of the child's heart.

So imperfect is our control of rheumatism that we are compelled to qualify our views on the prognosis in any particular case by the warning that another attack may entirely alter our present opinion—and the younger the child the greater is the possibility of such a change in our view. Virulent attacks of carditis, experience amply proves, do irreparable damage, and attacks of less severity continually exacerbating are very grave events in fragile children. The type of pericarditis is of far more importance than the actual physical signs. If the associated myocardial symptoms are severe or the inflammation spreads far into the surrounding tissues the outlook is grave—in the first instance because of the damage to the cardiac muscle, and, in the second, because the after-result of external adhesions will be serious.

The sclerotic forms of endocarditis are incurable on account of the pathological processes that produce them, and the prognosis greatly depends upon whether or not we find evidence that the rheumatism is still showing periods of activity. Thus, for example, if a child with early mitral stenosis is suffering each year from attacks of chorea, it is very probable that the stealthy process in the mitral valve is also advancing, and if this is the case, symptoms of cardiac disability must develop.

If mitral incompetence is under consideration, it is not the murmur that will guide us but the evidence that tells us how much the cardiac muscle has been damaged by carditis. If a child after a first attack of rheumatism lives in an unsuitable house, however favourable the outlook may be when he first returns home, it will be entirely altered in a few years.

I think there is little doubt that there is still overmuch tendency to dwell upon the existence of a bruit rather than to take the broader view of the case, and regard the child as suffering from the results of a cardiac infection.

The malignant form of endocarditis must be of the gravest prognosis, for the pathology of the infective process shows us precisely what is happening, and we have no reliable method of treating the results, which are essentially due to a continual injection of the micrococcal infection into the general systemic circulation.

TREATMENT.

At the present time the treatment of rheumatic heart disease appears to me to be at a standstill, and to be in an unsatisfactory position.

This I attribute largely to the widespread teaching, so clearly reflected in examination answers, that we possess in the salicyl compounds a specific remedy. Medical literature abounds with examples of the hypnotic influence of words, due, perhaps, to the natural desire to find some firm areas in the morasses of its study. It is only natural that a student believing he has a specific drug will eventually use it confidently and persistently. I have seen these drugs used in small, large, enormous, and persistent doses, and no one is more desirous to see good results; yet, after years of observation, I am left cold, and if it were not so pitiful it would be laughable to apply the term "specific" to the results we obtain in rheumatic heart disease. No one could deny the value of these drugs in rheumatism, but a valuable remedy is far removed from a specific one, and if our profession would boldly face what I honestly believe to be the truth, they would, I feel sure, be much more inclined to seek another direction for attacking the problem of the treatment of rheumatic heart disease.

This direction is toward *prevention*, and in a brief outline I venture to indicate my own views upon this problem.

1. When time and circumstances permit this should be a national effort.
2. The topographical incidence of the disease in the country should be reconsidered from the standpoint of an infective process.
3. To live in well built houses should be a duty we owe to children.
4. Special convalescent homes in touch with the large hospitals should be established.
5. The education of the public, and in particular of those connected with educational institutions, in the broad outlines of the disease should be perseveringly undertaken.
6. The supervision of children during the school age has already been undertaken, and this supervision should be extended to the proper choice of employments for those with hearts damaged by the disease.
7. The scientific study of the disease should be conducted in an institution or institutions in order to ensure an *unbroken* record of research on the broadest lines. Individual effort would not be interfered with, but the unavoidable break in continuity associated with individual research must in my opinion be rendered impossible in the future by a permanent centre for investigation of rheumatic diseases.

The two great essentials appear to me to be these:

1. The establishment of organizations by which the rheumatic child can be assisted and guided through life, and thus a sound

knowledge of cardiac infection from its earliest days be acquired by our profession.

2. The establishment of some permanent organization for the study of rheumatism upon the broadest lines.

The treatment of the individual child with rheumatic heart disease has been written upon repeatedly by abler pens than mine. I shall only venture upon a few observations which are in no sense intended to be either new or startling discoveries, but which may be helpful to those who have had fewer opportunities of seeing these cases.

First, with regard to the tonsils—I believe that there are cases in which enucleation is of great value, though it must be confessed that those which are the most successful are scientifically inconclusive. A child, for example, has recurrent attacks of tonsillitis, with arthritic pains and other symptoms, which suggest—not more—the early invasion of the rheumatic infection. The tonsils are enucleated and health greatly improves. We cannot say that if the operation had not been done this child would have developed acute rheumatism, though we may feel convinced that we have warded off danger. More conclusive but less satisfactory are those cases in which a cardiac infection has already occurred, and which after operation remain free from further attacks and in good health. For such cases I can vouch. It is, however, certain that recurrences may take place, and I have conclusive records upon this point, but no statistical evidence to calculate the proportion. This investigation requires a very large number of cases, and should be a feasible undertaking of great practical value. Operations upon the tonsils in the active phase of inflammation may be promptly followed by an attack of acute rheumatism, upon which occurrence also I have conclusive notes.

There remains another group in which the tonsils are evidently unhealthy and giving trouble, but the child has a degree of heart disease which renders one anxious as to the operative risk. Each case is a matter for judgement, but in general these children take anaesthetics well. It is clear that we have no right to assure parents that enucleation of the tonsils will free a child from acute rheumatic attacks, but I am convinced that as a preventive measure it is of first importance.

It is very essential for the treatment of the individual that the public should have a clearer understanding of the disease, for a practical difficulty in obtaining success in convalescence lies in the fact that a child who is making a good recovery from a cardiac attack may appear to be "quite well," and unless the parents understand that the heart is softened by the disease they will be inclined to worry or even suspect the doctor. Again, if a boy is athletic the schoolmaster is sometimes an offender, for he knows the glory of school games and despises the fads of doctors. Nevertheless, what does it profit a boy if he wins the school hundred yards and dilates a convalescent rheumatic heart?

The question of diet in the rheumatism of childhood is somewhat mysterious. There is a widespread idea among the laity that meat is injurious, and I presume such an idea would not have arisen unless based originally upon medical opinion. In all acute febrile illness there is general unanimity that a light diet is the best, but when one turns for evidence that there is any particular danger to rheumatic children in a nitrogenous diet, that evidence is not forthcoming. I can see no more reason for this dread of meat for rheumatic children than for the tuberculous, and believe it to be a fallacy. The disease is very common in children of a class who are not in a position to obtain an excess of meat foods, and I have failed to obtain any history of an excessive love of them. When the acute illness is over, these children often remain pale and feeble for long periods of time, and if during this stage we curtail the diet I think we lose an opportunity. If any one can produce trustworthy observations showing that meat foods given during this stage with the discretion needed for the convalescence from any lowering illness are harmful, it would be a practical service. I cannot myself find any such evidence, and have not felt myself bound in any way by the vague statements which are in existence upon this point.

Turning to more detailed considerations, some of the points that have struck me are the following:

1. The salicyl compounds—preferably, I think, the salicylates—are of value in relieving rheumatic pains, but if faith is pinned upon their specific value, we are logically driven in severe cases to large doses, and these are dangerous, particularly to fragile delicate children. No specific result will follow their use, though death may occur from drug poisoning.

2. Patience and dogged perseverance with excellent nursing are still the most valuable aids to recovery, and though rest will not prevent an acute attack (I have seen two attacks of pericarditis in a child kept in a Phelps box under a mistaken diagnosis), its value is attested to by all.

3. Pericarditis very rarely indeed will need operative interference.

4. Continued disturbance of a child with severe heart disease by external applications and drugs does more harm than good. We do not know how to cure the disease, and are therefore not justified in preventing Nature from having a share in the attempt.

5. Vomiting, digestive disturbances, and sleeplessness require prompt and early measures for their relief.

6. The leading principle during convalescence is not passive rest but cautious progress, and the ideal is to make the interval between absolute rest and a return to everyday life an inclined plane.

7. No forward movement is indicated while the area of cardiac dullness is still diminishing and the impulse improving in strength. A gain in weight and colour may be of even more value than slight changes in the physical signs. The aim is to obtain a steady level in the cardiac condition. This level must be dependent upon the condition of the heart before the particular attack, and, if the heart is already damaged, this must necessarily be but of relative efficiency. When we get a clear idea of this cardiac level then we can commence the cautious progress forward, testing each step as we go by the general condition of the child, the temperature, the pulse, and cardiac physical signs.

8. Small doses of digitalis are often, I think, helpful during the early forward steps in convalescence, but a rash or sudden over-exertion may delay recovery for weeks, and is the great danger in this stage.

9. The nervous element, so marked in aortic disease and myocardial affections, requires cautious handling and sympathetic attention.

10. When care has been exercised we find that the great cause for a failure in the cardiac power in childhood is a recurrence of rheumatism.

PRELIMINARY NOTE ON THE ASSOCIATION OF RICKETTSIA BODIES IN LICE WITH TRENCH FEVER.

BY

J. A. ARKWRIGHT, M.D., A. BACOT,

AND

F. MARTIN DUNCAN.

(From the Lister Institute, Chelsea.)

In connexion with the War Office Committee on Trench Fever, under the chairmanship of Sir David Bruce, F.R.S., we have had access to the trench fever clinical material at the New End Hospital, Hampstead. We are very much indebted to Major Byam and all the medical staff at the hospital for their constant help, and especially to Lieutenant Lloyd, who has been in charge of the entomological work at the New End Hospital.

Small bodies resembling diplococci or bipolar bacilli have been described in the blood of patients and in the insect vector in Rocky Mountain spotted fever by Ricketts (1909),[1] in typhus fever by Ricketts and Wilder (1910),[2] and in trench fever by Töpfer (1916).[3] The morphology and behaviour of the forms found in these different diseases are very similar, according to those who have had the opportunity of working at more than one of these diseases. To the bodies occurring in connexion with typhus fever da Rocha-Lima (1916)[4] gave the name *Rickettsia prowazeki*, in memory of two prominent workers who died of this disease, contracted in the course of their researches. The form found in lice believed to be uninfected or from trench fever patients he called *R. pediculi*. Rickettsia bodies are of very small size—0.3 by 0.3 to 1.5 microns—are non-motile, and are best demonstrated by staining for sixteen

to twenty hours with weak Giemsa stain (1 drop per c.cm.). Attempts to grow the parasite on artificial media have usually failed, but some successful cultures have been reported.

One of the most important characteristics of these bodies is the fact that, though very scanty and difficult to recognize in films of the blood of patients, they occur in great numbers in the intestinal canal of the louse, and sometimes elsewhere in the insect, which acts as an invertebrate host.

In the case of trench fever *Pediculus corporis* has been proved to be a very active agent in transmitting the disease by Davies and Weldon (1917),[5] Byam and others (1918),[6] and the joint British and American Medical Investigation Committee in France. A small quantity of the excreta of infected lice rubbed into scratches will almost invariably reproduce the disease in a healthy man. When infected lice are fed on a healthy man for a period lasting two or more weeks, infection follows in a certain proportion of cases, but in other instances infected lice may be fed twice daily on healthy men for four or more weeks without infection resulting, as was shown in experiments at Hampstead by Byam[6] in 1918.

Töpfer,[3] da Rocha-Lima,[4] and a few other workers have shown that lice caught on trench fever patients contain large numbers of rickettsia bodies, and that if lice believed to be free from infection are fed on a patient rickettsia bodies appear in their guts after about five to eight days from the first infecting feed, provided that the lice are kept at a temperature of 30° to 32° C. between the feeds.

The German work was incomplete because the observers seldom, if ever, were successful in transmitting the disease to man by lice—Werner and Benzler (1917),[7] Strisower (1918)[8]—and so were unable to correlate the appearances in the louse with the infectivity for man. Accounts of attempts to infect animals with trench fever have been contradictory and unsatisfactory. Moreover, most of the workers on the Continent have been handicapped by the prevalence of trench fever and typhus fever in the populations with which they have had to deal, and an uninfected stock of lice has been very difficult to procure.

For our work we have used a clean stock of lice bred in captivity and kept under observation for over three years. Our experiments have been made by feeding normal lice on trench fever patients both during and after febrile periods. Either the feeding on the infected person has been for one day only, followed by feeding on a healthy man, or after the first infecting meal the lice have been fed regularly on the same or another infected man, and between the feeds the lice have been kept in an incubator at a temperature of about 27° C., or in an inside pocket.

The lice have been examined microscopically daily by means of (1) films made from the excreta; (2) films from the gut contents, or (3) microscopic serial sections. The films have been treated with acid alcohol to fix and to remove haemoglobin débris, and have been stained with Giemsa stain.

The following observations have been made, confirming and extending those of previous workers:

1. If a box of lice is fed on a trench fever patient, and the excreta collected after a period of about ten days, large numbers of rickettsia bodies can almost invariably be found in films. Smears of the guts of lice from such a box contain large numbers of these bodies after about the same interval of time. Of 253 specimens from boxes of lice which had been fed on trench fever patients at least five days previously, 150 showed rickettsia bodies, 83 gave a negative result, and 20 a doubtful result.

2. The excreta from sixteen boxes of lice which were examined daily after an infecting meal showed rickettsia bodies for the first time twice on the fifth day, three times on the seventh, three times on the eighth, four times on the ninth, three times on the tenth, and once on the twelfth day from the first infecting meal. When first seen only small numbers were noted in the films, but three or four days later enormous numbers appeared. These experiments show that after an infecting feed there is a period during which these bodies are not recognizable on account of their small numbers, or of some difference in form. When a box has once become infected with rickettsia the excreta collected from it continue to show the bodies for two or three weeks, or till the lice which partook of the infecting feed are dead.

3. All lice from an infected box do not show rickettsia; only a small proportion do so in the first week; the proportion increases until after two and a half to three weeks the great majority show these forms. Experiments at Hampstead have also made it probable that after the same time a considerable proportion of lice are infective.

4. Trench fever patients can infect lice with rickettsia bodies during the fever, between the attacks, or even several weeks after an attack during a non-febrile period.

5. Normal lice, fed on persons who have not been exposed to trench fever infection, have remained free from rickettsia. Of 245 specimens from twenty-two boxes fed on seven healthy persons only one specimen of excreta was found to contain forms which closely resembled rickettsia microscopically. It is not surprising, considering the difficulty in recognizing such small bodies by their morphology, that occasional errors should occur. Four other specimens from two boxes showed these bodies, but they were being fed on a man who had been working with infected excreta in the laboratory for five weeks, and had also been feeding infected lice on himself for the same period. He developed trench fever three days after the first of the four positive specimens was found. It is most probable, therefore, that he had been infected for some days before the bodies were observed in the lice.

The Similarity of the Properties Possessed by Trench Fever Virus and Rickettsia Bodies, and Coincidences in their Occurrence in Lice.

1. Rickettsia bodies are very small, often about 0.3 by 0.3 micron in size, and approach the limits of filterability by a Berkefeld filter. There is also some difference of opinion as to whether trench fever virus and typhus virus can pass through a Berkefeld filter.

2. Rickettsia bodies can to a great extent be separated from larger bacteria in an emulsion of excreta in salt solution by differential centrifugalization. The Medical Investigation Committee in France states that blood plasma centrifuged free from cells still contains the virus of trench fever.

3. Lice do not, according to two series of inoculation experiments carried out by Major Byam,[6] become infective (as shown by inoculation of their excreta) after an infecting meal for five to ten or twelve days, and rickettsia bodies do not make their appearance till about the fifth to the twelfth day.

4. All the lice in an infected box are not infective, nor do all contain rickettsia during the second week after the first infecting feed. In one experiment carried out at Hampstead, two lice, one showing and the other not showing rickettsia, were selected from a box on the eleventh day from the infecting feed, and they were inoculated separately into two different men. The louse with rickettsia caused trench fever and the other did not.

5. In fifty-three experimental inoculations of volunteers at the New End Hospital the lice or excreta of lice, used as virus, were also examined microscopically. In every case the lice had previously been fed on a trench fever patient.

Twenty-seven specimens showed rickettsia bodies and caused trench fever.

Ten specimens did not show rickettsia bodies and did not cause trench fever.

One specimen showed rickettsia bodies, but did not cause trench fever.

Two specimens did not show rickettsia bodies, but caused trench fever.

Four specimens gave a doubtful result microscopically, or the inoculation was followed by fever of a doubtful nature.

Nine specimens showed rickettsia bodies but did not cause trench fever, because the virus had been heated or treated with disinfectant, or because the volunteer inoculated had recently passed through an attack of trench fever, and was probably immune.

The agreement between the demonstrable presence of the virus and of the rickettsia bodies is very close. If the thirteen cases which gave a doubtful result or in which agreement was not to be expected, on account of disinfection of the virus or immunity of the patient, are excluded, then forty cases remain, and the agreement between the two methods of examination in thirty-seven is complete—that is, in 92.5 per cent.

These facts indicate the striking interdependence of trench fever virus and rickettsia bodies, though the proof

of identity is still wanting, and the inability to obtain definite cultures of rickettsia bodies up to the present hinders further advance in this direction.

Conclusions.

1. The constant presence, after a suitable lapse of time, of rickettsia bodies in lice which have been fed on a trench fever patient has been confirmed.

2. The absence of rickettsia bodies from lice bred in captivity and fed only on healthy men has been shown by our work, in contradistinction to observations made on the Continent where the population is much more exposed to infection and a clean stock of lice is more difficult to procure than in this country.

3. A very close correlation has been shown to exist between the presence of rickettsia bodies in lice or the excreta of lice and the virulence of these materials when inoculated into men.

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THE WORK OF A DEPARTMENT FOR EMPLOYING EXPECTANT MOTHERS IN A MUNITION FACTORY.

(Preliminary Report.)

BY

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The question of the employment of the working woman who becomes pregnant has always been a vexed one. Opinions have varied from that which considered a woman in this condition should not be employed at all to that which would afford no consideration whatever to a woman supporting the added strain of a pregnancy.

Since the outbreak of the present war the numbers of married women of child-bearing age who have entered into industrial employment have steadily increased. These women have in the large majority of cases entered factory employment in order to earn money for the adequate maintenance of themselves and their children, and as time goes on the need for their earnings has become more and more evident. They cannot without serious hardship to themselves and their children relinquish their earned weekly wages. A woman factory employee who becomes pregnant still more has need of her earnings to maintain her own nourishment and that of the developing fetus, and also to make adequate preparation for the inevitable expense entailed by the arrival of a new baby into the family.

Apart from the necessity for engaging in well-paid work experienced by these women, various industries have discovered that these married women are valuable servants, who are reliable workers in different processes and who cannot always be replaced by satisfactory substitutes if they leave work.

Up to a recent date there has been no fixed routine of procedure in dealing with women factory employees who have become pregnant. In some instances the condition has been ignored and the woman has been allowed to work at any process as long as she has wished to do so without any regard to the suitability of the work upon which she is engaged. In other cases the custom has been to dismiss an expectant mother directly her condition becomes apparent regardless of the question of her ability to work to a later date.

There has been in the past too little inclination to look on the question from the point of view that most factory workers when pregnant are still physically fit to undertake paid work and that they are in need of their earnings to maintain their fitness.

In carrying out the routine medical examination of women engaged on various engineering processes connected with shell, fuse, and gun manufacture, one of the writers became greatly impressed, first, with the number of women who were at work which was unsuitable while hiding their condition to avoid dismissal at the fourth month of pregnancy, and secondly, with the amount of illness of short duration among the workers which might be suspected to be due to miscarriage in the early weeks of pregnancy, although confirmation of this suspicion could in many cases not be obtained.

On going into the reasons, both these conditions appeared to result from one root cause—namely, the anxiety on the part of the women to retain their work and their earnings. If the pregnancy miscarried they were relieved of the necessity of ceasing work, and if it went on to term, then they did all in their power to conceal the true state of affairs, even though it entailed the performing of much unsuitable work.

One of the writers thereupon approached various employers to see whether suitable work could be given to expectant mothers, and was met with a flat refusal to undertake any such thing, on the grounds that their employment would lead to loss of money by the employer, and that it was unseemly for an obviously pregnant woman to be seen by other employees.

Thereupon the writer approached the Factory Inspection Department of the Home Office to ask whether it would establish a central workroom for the district for some needed war industry at which these women could be given employment. This department, while approving of the idea if started by private enterprise, refused to initiate such a scheme.

Finally, a copy of the letter sent to the Home Office was sent to Major C. P. J. Ovans, the superintendent of the National Ordnance Factories, Leeds, with a request that this group of factories should initiate a scheme to deal with cases of pregnancy occurring among its own workers. This request was seriously considered by the management and an experimental scheme was drawn up by the writers with the active co-operation of the superintendent, to deal with cases of pregnancy up to the birth of the child.

The regulations and terms of employment of these women were discussed with their trades union representative, and were also brought before a meeting of the workers' representatives. It was entirely approved by these women, who had an extremely broad-minded outlook on the whole question, and were able to give valuable opinions on various details of the scheme from the workers' point of view.

The prematernity scheme was opened for the transfer of women in April, 1918, and has worked without any administrative hitch since that date. The women themselves apply at each factory to their welfare supervisor to be enrolled for employment under the scheme. They fill in a form of application, and sign an agreement to accept the wages offered for this class of work. This form is forwarded to the lady superintendent in charge of the scheme, who notifies the factory medical officer of the applications. The factory medical officer examines all applicants as soon as possible, and sends in a report upon them as to date and number of pregnancy, date of expected labour, complications if any, and the grade or work for which they are then suitable, and the desirable dates for transfer to lighter work. From this tabulated list of applicants the lady superintendent of the scheme is able to transfer women to their special work as they become eligible provided there is a vacancy by the delivery of women further advanced in pregnancy working under the scheme.

As regards the choice of work, women on becoming pregnant are very adversely affected by night work apart from any degree of heaviness. Long before pregnancy is obvious to outsiders, and even to themselves, they begin to complain bitterly of the fatigue of night work. For this reason the aim of the scheme is to place expectant mothers on day work only as a routine at the end of the fourth month of pregnancy, and sooner than this date if there is a complaint of great discomfort due to night work.

As soon as these women notify their pregnancy, even though they have not reached the end of the fourth month, an attempt is made to give them light work within the factory while still working night and day shifts. They are removed from any process which involves heavy lifting or sudden strain. The operating of a capstan lathe involves the tightening and loosening of the chuck, which in many cases requires great physical effort to move it. For this reason pregnant women are taken off lathe work as soon as possible after notification. Some automatic machines, electric crane driving, and some labouring inspection processes involve no such straining and are quite suitable employments for women in the early months of pregnancy.

On reaching the end of the fourth month of gestation, or earlier if there is any medical reason, these women are transferred to light sedentary work at a factory engaged in the gauging and assembling of fuse parts. They work from 7.30 a.m. till 5.30 p.m., with the usual factory breaks for meals. They are given the less skilled operations in this factory, as it is not worth while devoting much time to teaching them any work at which they will be employed only a few months. They are paid at the ordinary standard rate for their work, and the only difference in their treatment from the other employees is that they remain constantly on day work instead of being on night shift on alternate weeks.

At the end of the seventh month, or earlier if there is any medical reason, these women are transferred from the fuse factory to a department which for convenience is described as the general clothing store and sewing dépôt. Here they work from 9 a.m. till 5 p.m., with breaks for meals as in the factory. They are engaged upon the making and mending of overalls, caps, trouser suits, gloves, etc., supplied by the factory management for the use of their workers. The last hour of the day is given up to the making of clothes for the baby under the help and guidance of the sewing dépôt forewoman. The sewing is carried out by hand or with the help of hand sewing machines and the pressing with a gas iron.

The sewing dépôt consists of a forewoman's office, a dining-room, cutting out room, storeroom, workroom, lavatory, cloakroom, and rest room. The women have low tables specially made for their work, comfortable chairs, and footstools for the workroom. They are encouraged to lie down in the rest room during part of their dinner hour, and at any other time if they are temporarily indisposed. They are paid while at this work at the rate of 7d. an hour, which equals 22s. 2d. a week, and, in addition, are supplied with half a pint of milk in the middle of the morning and a two-course dinner from the canteen every day as a free gift from the management.

The medical officer sees any woman scheduled under this scheme at any time if this is necessary for any special reason, and visits the sewing dépôt regularly once a week. At this weekly visit she takes a general survey of the health of the women, examines a specimen of urine from each for the presence of albumin, and gives advice to any special case that is in need of it.

The women make their own arrangements for attendance during confinement. They may remain at work until labour begins, if they wish to do so; one woman has been sent home half through the first stage of labour protesting that she would like to stay and have her dinner before leaving.

Since this scheme has been in actual working order one or two points have impressed themselves very much upon our notice. The early notification of pregnancy is entirely a new phenomenon since the workers have come to know that their condition will not lead to the loss of their employment, and the number of applicants for enrolment exceeds greatly the expected number as calculated from the numbers leaving the factory on account of pregnancy previous to the starting of this scheme. This second result is due to two causes: First, there is no object in concealment, as unmarried girls with their first pregnancy are equally cared for with the married women; and, secondly, there seems less anxiety on the part of the married workers to terminate a pregnancy in the early months before its existence can be suspected by any one but themselves. Before this scheme began its operations pregnancy was looked upon as a calamity to be avoided by all possible means, as it inevitably prevented the continuation at work when it became obvious to the factory authorities.

The women working under this scheme appear entirely contented with the conditions of their work and the pay they receive; the only anxiety they show is that they shall be able to find employment somewhere in the factory after their children are born.

At the present time it is too early to make any dogmatic statement about the condition of the children born of these mothers, but even now the general well-being of the mothers is very apparent. Though the period since its opening is so short, the accommodation for applicants has been found to be too small, and it has become necessary to consider the establishment of a much larger workroom. As this workroom is the only one of its kind in the country, the management has already been approached by other factories to admit expectant mothers from outside to its workroom, but naturally without large extension this is impossible.

It seems highly desirable that these mothers shall not be separated from their children when they return to work, so that it is hoped in the near future to establish a post-maternity department, with work for the mothers and a nursery for the children, where they may be breast-fed at suitable intervals.

This whole scheme, which is still in the experimental stage, has been worked out on the assumption that it is no charity, but rather sound business, for a large factory to care for its workers who are expectant mothers, and up to the present this assumption has proved true. The women fully earn their wages, and the factory has the benefit of their work. They themselves are healthy, and it is our confident expectation that in due course the children will show the results of the care bestowed upon their mothers before they were born.

NOTES ON THREE FATAL CASES OF B. AERTRYCKE INFECTION.

BY

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MORE or less severe outbreaks of diarrhoea and of gastro-enteritis are common among soldiers in camps, but it is not often that the infecting agent can be found and identified. The three fatal cases of acute gastro-enteritis we are about to describe were admitted to hospital from a large convalescent dépôt near by, in which several hundred other (but milder) cases of the same disorder occurred. The very complete investigations of Captain Perry, R.A.M.C., and Captain Tidy, R.A.M.C.(T.), have proved that the infecting agent in these milder cases was, as in our three patients, *B. aertrycke*.

CASE I.

Pte. D. H., aged 27. Admitted April 17th in a state of collapse; grey in colour with sunken eyes, cold extremities, no pulse at the wrist, weak heart sounds (rate 130), temperature 95° F. Stated that he had had continual diarrhoea and vomiting with much abdominal pain since April 13th. During the day the patient took nothing but cold water, vomiting without effort yellowish-green mucous fluid, and passing several greenish pea-soup-like stools containing no solid particles or blood. In the evening he became unconscious, with infrequent shallow respiration, but was much improved by the intravenous infusion of three pints of 6 per cent. gum acacia solution combined with 1½ drachms of sodium bicarbonate.

April 18th. Temperature 96.4° F., pulse 150. Extremities cold; abdomen retracted, tender, rather rigid, spleen not palpable, borborygmi. Diarrhoea and vomiting continue uncontrolled by morphine given under the skin.

April 19th. Temperature 97.2° F. last night, 95.8° F. this morning; pulse 92. Patient has vomited ten times and had his bowels open thrice in the last twenty-four hours, thin yellow-green fluid in each instance. He prefers cold water to all other forms of fluid offered him; and complains much of abdominal pain, unrelieved by hot applications.

April 20th. Temperature 96.8° F. last night, 96.0° F. this morning. Patient is weaker, lies with his eyes half open. The diarrhoea and vomiting continue unrelieved by morphine hypodermically or Dover's powder by the mouth. Abdomen retracted, soft, tender. Fluids taken badly.

April 21st. Mucous râle in the throat, much râle in the lungs; incontinence of urine and faeces, no pulse at the wrists; heart beating 78, regular. Patient died suddenly in the afternoon.

CASE II.

Lce.-cpl. J. A. M., aged 30. Admitted April 17th, collapsed, rather grey. Temperature 98° F., pulse 124. Stated that he had had diarrhoea and vomiting since April 15th, with much abdominal pain.

April 18th. Patient looks worse. Temperature 96° F., pulse 140, voice reduced to a whisper. Diarrhoea and vomiting continue uncontrolled by morphine gr. ⅔ hypodermically. Abdomen full, general tenderness and slight rigidity, borborygmi; spleen not felt.

April 19th. Temperature 97.6° F. last night, 96° F. this morning, pulse 88. The vomiting of thin yellow bilious fluid continues about hourly unchecked by morphine or Dover's powder. Patient is listless, unwilling to take anything but cold water. Abdomen a little retracted and rigid, has been very painful. Occasional attacks of hiccough last night and to-day.

April 20th. Temperature 96.4° F. last night and this morning. Patient is losing ground. There is weakness of left upper eyelid and tendency to upward and outward squint of left eye, both disappearing when his attention is fully roused; attributed to muscular weakness. Vomiting six times, diarrhoea twice in the night.

April 21st. Patient is weaker; the diarrhoea and vomiting have ceased; there is urinary incontinence; liquids are taken very badly. Abdomen soft, rather hollow; no rose spots, spleen not felt. Later the patient was pulseless, cold, with spasmodic respiration; the intravenous infusion of two pints of 6 per cent. gum acacia, with four ounces of champagne, produced a weak pulse and brief return of consciousness, but death occurred two hours later.

The symptoms presented by these two patients were those of acute gastro-enteritis, with grave toxaemia and great bodily weakness. The temperature was constantly subnormal. Both patients took water freely, and, in spite of the frequent vomiting and passage per anum of what appeared to be pure bile and water mixed with a little mucus, did not waste away very considerably during their nine days of illness.

The third patient had a milder attack of gastro-enteritis, complicated with bronchitis and pneumonia, for which he was admitted to hospital thirty hours before he died.

CASE III.

Pte. J. McG., aged 32. Admitted for acute on chronic bronchitis, having had diarrhoea and vomiting for a few days (period uncertain). Patient was a stout man, cyanosed and orthopnoeic on admission, too ill for a thorough examination. Temperature 103° F., pulse 106, respirations 32. The pulse was very weak, moist râles were heard over the chest, and twenty-eight pea-soup-like stools were passed during the last twenty-four hours of life. There was no vomiting.

The patient died of heart failure with increasing cyanosis and dyspnoea the day after his admission, much exhausted by the diarrhoea.

Post-mortem Examinations.

CASE I.—Pte. D. H. Examined twenty hours after death. Thin body, sunken eyes, rigor mortis present, much *post-mortem* staining of the dependent parts of the body. The lungs showed adhesions in front on both sides; on section the lung tissue was congested and friable, and a little mucus could be expressed from the tubes. The heart showed a few ecchymoses on the surface of the right ventricle; there was much clot in the left ventricle; a little in the right and in the auricles. The liver was pale and firm on section; the edge showed cloudy swelling. The gall bladder was full of thick yellow mucous fluid, tense and congested, with a few adhesions to the omentum. On section a few ecchymoses were seen at the fundus; the mucous membrane was not swollen. The spleen was small, with wrinkled capsule, tough on section. The pancreas, suprarenals, kidneys, and bladder showed nothing abnormal.

Alimentary Tract.—Oesophagus normal. The stomach showed congestion and ecchymoses on the greater curvature. Duodenum congested, with many ecchymoses. Jejunum slightly congested throughout, especially on the valvulae conniventes. The ileum contained reddish fluid; it was slightly congested throughout, lymphoid follicles not prominent. Caecum intensely congested; appendix normal; ascending colon intensely congested, transverse and descending colon not abnormal. The rectum was normal. No ulceration found in any part of the alimentary tract.

Peritoneum normal, mesenteric glands a little enlarged. Brain normal, cerebro-spinal fluid opalescent.

Pure cultures of *B. aertrycke* were made from the bile and spleen; the urine was negative.

CASE II.—Lce.-Cpl. J. A. M. Examined thirteen hours after death. Well nourished body, sunken eyes, rigor mortis present; slight *post-mortem* staining of dependent parts.

Trachea and vocal cords normal; lower lobes of the lungs congested and friable. The heart showed a few petechial haemorrhages on the ventricles; the left ventricle contained much clot. The liver was natural; gall bladder congested, full, and on section showed a few petechial haemorrhages. The spleen was a little enlarged; firm on section. Pancreas, suprarenals, kidneys, and bladder not abnormal.

Alimentary Tract.—Oesophagus normal; stomach somewhat congested at the pyloric end. Duodenum normal; jejunum and ileum for the most part intensely congested, with two or three segments a couple of feet long free from congestion. Lymphoid follicles prominent throughout as small white raised spots; Peyer's patches not conspicuous. Caecum intensely congested, marked with many sago-grain lymphoid follicles; appendix normal. The ascending and transverse colon intensely congested, with conspicuous sago-grain follicles. The splenic flexure also intensely congested, with sudden transition to the descending colon and sigmoid showing slight congestion and prominent lymphoid follicles; the rectum was normal; no ulceration was found in any part of the alimentary tract.

The peritoneum was normal; many of the mesenteric glands enlarged to the size of beans or peas, hard and white on section. The brain was normal. *B. aertrycke* was cultivated from the spleen, bile, and urine.

CASE III.—Pte. J. McG. Examination seventeen hours after death. The right upper lobe was in a state of red hepatization, the middle and lower lobes congested and partly hepatized. The left lung was oedematous, and showed emphysema at its margins. The heart, pancreas, suprarenals, and kidneys were not abnormal.

Alimentary Tract.—The cardiac end of the stomach showed ecchymoses and congestion, the duodenum congestion. The upper end of the jejunum was normal, the lower part showed patches of congestion. The ileum was congested in patches, and exhibited a few petechial haemorrhages, but no obvious lymphoid follicles. The caecum was congested; the ascending colon was slightly congested, the transverse normal. The splenic flexure and descending colon were deeply congested; plaques of greyish-white mucus adhered to the deeply congested mucosa of the sigmoid, while the rectum was normal.

B. aertrycke was grown from the sigmoid mucosa, but was not obtained from the spleen, gall bladder, or urine.

Bacteriological Examination.

On April 18th the stools and vomit of D. H. were planted out on MacConkey bile-salt-lactose-agar plates. An exceedingly large number of non-lactose fermenting colonies developed—in fact, the faecal specimen yielded as many of these colonies as of *B. coli*. Subcultures gave the usual characters of the *B. paratyphosus* B group, and our R.A.M.C. paratyphoid B serum agglutinated the bacilli in a 1 in 5,000 dilution. This result indicated that the organism was either *B. paratyphosus* B or *B. aertrycke*, as it was unlikely that *B. enteritidis* (Gaertner) would be agglutinated in this manner. It was soon found that *B. enteritidis* serum of a 1 in 12,000 titre had no effect on the bacillus of D. H. in a 1 in 50 and higher dilutions.

To determine whether the micro-organism should be classed as *B. paratyphosus* B or *B. aertrycke*, absorption experiments were carried out in conjunction with Captain Perry, R.A.M.C., to whom we were indebted for a supply of *B. aertrycke* serum. The absorption tests demonstrated that the bacillus was of the *B. aertrycke* type and not a true *paratyphosus* B, although very closely related to the latter. These findings were in complete agreement with the clinical condition, which suggested a diagnosis of food poisoning rather than of paratyphoid fever. In our work the Dreyer technique was employed throughout.

On April 20th blood was taken from D. H. and J. A. M. for culture and agglutination tests.

Culture Results.—Enterococci were present in the blood of D. H.; that of J. A. M. was sterile.

Agglutination with Oxford Standard Emulsions.

	1 in 25.	1 in 50.	1 in 125.	1 in 250.
D. H.'s serum:				
Typhoid	+++	+++	++	–
Paratyphoid A ...	+++	+++	–	–
Paratyphoid B ...	+++	+++	++	–
J. A. M.'s serum:				
Typhoid	+++	+++	–	–
Paratyphoid A ...	++	++	–	–
Paratyphoid B ...	+++	+++	++	–

H.'s culture from faeces was then employed and a fairly thick emulsion from an agar slope yielded with the serums the following results:

H.'s Bacillus with Serums.

	1 in 25.	1 in 50.	1 in 125.
D. H.'s serum	+++	–	–
J. A. M.'s serum	++	–	–

The bacilli being recently isolated were much less readily agglutinated than the Oxford emulsion.

For twenty-four hours before his death J. A. M. ceased to have diarrhoea and to vomit, so no material was obtained until the autopsy. On April 22nd *post-mortem* examinations were made; an account of the findings has already been given.

On April 23rd the agglutination of cultures from the spleens of D. H. and J. A. M. was tested with a *paratyphoid* B serum which was supposed to be effective up to a dilution of 1 in 8,000 (R.A.M. College serum).

Paratyphoid B Serum.

	1 in 500.	1 in 1,000.	1 in 2,500.	1 in 5,000.
D. H.'s bacillus from spleen ...	+++	+++	+++	+++
J. A. M.'s bacillus from spleen	+++	+++	+++	+++

Absorption Experiments.

The results of a few out of many tests were as follows:

The *paratyphosus* B serum which agglutinated D. H.'s bacillus up to 1 in 5,000 and the Oxford *B. paratyphosus* B emulsion up to 12,500, was stated on the bottle to agglutinate *B. paratyphosus* B up to 1 in 8,000. It was a year old, and was diluted 1 in 20 in the bottle.

Experiment 1.—Dilutions of 1 in 100 of this serum were made, and were saturated with (1) growth from stock *paratyphosus* B agar culture, and (2) a similar culture of D. H.'s bacillus, and kept for two hours at 37° C.

	1 in 200.	1 in 500.	1 in 1,000.	1 in 2,000.
(1) Serum saturated with *paratyphosus* B. bacillus:				
D. H.'s bacillus	–	–		
Paratyphosus B	–	–		
(2) Serum saturated with D. H.'s bacillus:				
D. H.'s bacillus	–	–	–	–
Paratyphosus B	+++	+++	+++	–

It would seem that D. H.'s bacillus in two hours can remove four-fifths of the *paratyphosus* B agglutinins, whilst *B. paratyphosus* B under the same conditions removes all the agglutinins.

Experiment 2.—A serum which agglutinated the Oxford emulsion *paratyphosus* B up to 1 in 12,500 and D.H.'s bacillus up to 1 in 5,000 was saturated with (1) *B. coli* and (2) D.H.'s bacillus, exposed to two hours' incubator temperature, and then left in the laboratory overnight at room temperature.

	1 in 250	1 in 500	1 in 1,250	1 in 2,500	1 in 5,000	1 in 12,500
(1) Serum saturated with *B. coli*:*						
Paratyphoid B Oxford emulsion	+++	+++	+++	+++	+++	+
D. H.'s bacillus	+++	+++	+++	+++	+	–
(2) Serum saturated with D. H.'s bacillus:						
Paratyphoid B Oxford emulsion	+++	+++	+++	+		
D. H.'s bacillus	–	–	–	–		

* Neither paratyphoid B Oxford emulsion nor D. H.'s bacillus agglutinated at 1 in 25,000.

The conclusion is that D. H.'s bacillus can absorb at least four-fifths of *paratyphosus* B agglutinins from a *paratyphosus* B serum, whilst *B. coli* has no such effect.

Experiment 3.—The same serum as in Experiment 2 was saturated with J. A. M.'s bacillus (spleen), with *paratyphosus* B. and with another strain of *B. coli*. Instead of the Oxford emulsion, an emulsion of laboratory strain of *B. paratyphosus* B was employed.

End point for *B. paratyphosus* B:
Before saturation ... ... 1 in 5,000
After saturation with *B. paratyphosus* B ... 1 in 500
After saturation with J. A. M.'s bacillus ... 1 in 500
After saturation with *B. coli* ... ... 1 in 5,000

End point for J. A. M.'s bacillus:
Before saturation ... ... 1 in 5,000
After saturation with *B. coli* ... ... 1 in 5,000
After saturation with J. A. M.'s bacillus ... 1 in 500
After saturation with *B. paratyphosus* B ... 1 in 500

Experiment 4.—This experiment proved that D. H.'s bacillus was of the *B. aertrycke* group.

A sample of *B. aertrycke* serum was obtained from Captain Perry and was found to cause standard agglutination of D. H.'s bacillus, and of the Oxford *B. paratyphosus* B emulsion in 1 in 25,000 dilution, and of the laboratory *paratyphosus* B culture in 1 in 12,500 dilution.

When the serum was diluted to 1 in 200 and equal volumes of it saturated with the growth from three agar slopes of D. H.'s bacillus and three agar slopes of *B. paratyphosus* B, the agglutination results after two hours at 37° C. and twenty hours at 22° C. were as follows:

	1 in 500.	1 in 1,000.	1 in 1,250.	1 in 2,500	1 in 5,000	1 in 6,250
(1) Serum saturated with D. H.'s bacillus						
D. H.'s bacillus	trace	–	–	–		
B. paratyphosus B emulsion...	–	–	–	–		
Oxford emulsion of *B. paratyphosus* B	–	–	–	–		
(2) Serum saturated with *B. paratyphosus* B:						
B. paratyphosus B	trace	–	–	–		
Oxford emulsion of *B. paratyphosus* B	trace	–	–	–		
D. H.'s bacillus	+++	+++	+++	+++	+++	+++

There was standard agglutination of D. H.'s bacillus with a 1 in 12,500 dilution of the serum saturated with *B. paratyphosus* B.

The conclusion to be drawn from this experiment is that from a specific *B. aertrycke* serum (type B, Lister Institute) D. H.'s bacillus can remove all the agglutinins, whilst *B. paratyphosus* B leaves unabsorbed those for D. H.'s bacillus, and that in consequence D. H.'s bacillus is not identical with *B. paratyphosus* B but is of the *B. aertrycke* group.

VENTRAL HERNIA:

A DEVICE TO STRENGTHEN THE ABDOMINAL WALL.

BY

H. H. GREENWOOD, M.B., B.S.LOND., M.R.C.S.,

CAPTAIN R.A.M.C.(T.),

LEEDS.

REPAIR of the majority of cases of large ventral hernia can be adequately effected by one of the established methods or by a judicious combination of several, but occasionally one is encountered so extreme in degree, so crippling in its results, that life becomes a burden to its unfortunate owner, and the surgeon views with dismay the huge tract of thinned abdominal wall, beneath which movements of intestine are disconcertingly evident.

These extreme cases are usually the sequel of sepsis. In Stanton's report[1] on 500 laparotomies, of which 24 developed ventral hernias, it is stated that 21 out of the 24 were due to sepsis. Such was the sequence of events in the case to be described. Hysterectomy for impacted fibroid tumour of the uterus was performed in February, 1913, by the abdominal route. This was followed by sepsis of the wound and the discharge of urine through a fistulous opening, which finally closed; the weak scar allowed the formation later of a huge ventral hernia in the middle line, reaching from above the umbilicus to the pubes.

Locomotion grew more and more restricted, so that finally the patient could only walk some fifty yards without assistance. Various types of abdominal belt were tried without avail; operation was discouraged for a long time, but she still urged that an attempt should be made.

A device was employed at the operation which may well serve as an adjunct to the ingenious and effective technique of Haines.[2] I cannot find in the literature a reference to this method, and as any plan which will strengthen the abdominal wall in these extreme cases may prove helpful, it seems worth while recording it.

The patient, Mrs. W., was a multipara, aged 58 years. Operation was preceded by three weeks' rest in bed, restricted diet, purging, and abdominal kneading. The abdomen showed the usual deep hollowing of the upper half, and the recti were obviously displaced to the extreme outer edges of the hernia.

On July 26th, 1918, a transverse incision, curving downwards, was made, midway between the umbilicus and pubes, from the outer border of one rectus to that of its widely separated fellow. A crescentic piece of skin was excised and the flaps carefully dissected up and down. Here a feature that is usual in cases following sepsis was recognized—that is, considerable thickening of the rectus sheath, so that the muscle was "hide-bound," as it were.

In the Trendelenburg position the intestines, covered by the translucent transversalis fascia and peritoneum, still bulged forward, and the recti remained immovable.

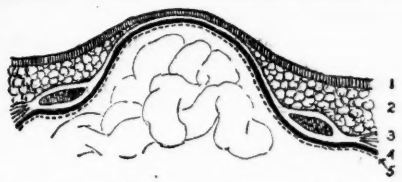

FIG. 1.—1, Skin. 2, Subcutaneous tissue. 3, Rectus in sheath. 4, Transversalis fascia. 5, Peritoneum.

FIG. 2.

FIG. 3.

FIG. 4. FIG. 5.

A longitudinal incision through the anterior layer of each rectus was made close to and parallel with the outer border (A A', Fig. 2), the flaps dissected off the muscle and turned inwards (B B', Fig. 3). The muscles were freed also on their posterior aspect nearly up to their outer margin, and by pulling firmly on the flaps these could now be made to overlap, and the recti could be drawn inwards almost to the middle line.

Protrusion of the bowel proving rebellious to pressure, the peritoneum was opened, the intestines pushed upwards and kept back by a flat swab; by pulling on the stout fascial flaps the peritoneal edges were reunited with fine catgut. In more favourable cases this step may prove unnecessary. This detail does not affect the principle involved in the operation.

On one side (at C) it was necessary to peel outwards the diaphanous layer of combined transversalis fascia and peritoneum from the posterior layer of the rectus sheath, and in the angle the free edge of the flap B' was fixed by a series of interrupted stitches of No. 2 catgut. The opposite flap was similarly treated, the two forming a firm bed, on which a McGavin filigree was placed, for it was found that the edges of the recti could not be brought into contact without tension. It is possible that implantation of the filigree was superfluous, but it was felt to be the more prudent course. The rest of the operation was completed on familiar lines.

An important rule, sometimes disregarded and not sufficiently emphasized in the textbooks, is the preservation of the anatomical integrity of the parts adjoining the linea semilunaris. If the rectus be completely dislocated and displaced inwards, a gap of merely fibrous tissue is left between its outer edge and the strong line of junction of the transversalis with the oblique muscles. By using the method advocated in this paper, the muscle planes in their normal relations are drawn as near to the middle line as is practicable, and any gap that remains is in the middle line, where it can be the more easily bridged by a filigree or controlled by a belt.

Advantages gained by this simple device are:

1. The hide-bound muscles are freed from the strangling effect of contracting scar tissue.
2. The denuded anterior aspect of the rectus comes to lie covered by subcutaneous fat, which tends to prevent reformation of excessive scar tissue.
3. Release of the muscles from dense scar tissue allows of improved blood supply and development.
4. The stout flaps raised from the anterior surface of the muscles give purchase whereby the recti can be drawn inwards.
5. There is no interference with the nerve supply entering the outer border of the muscles.
6. The overlapped flaps form a firm bed on which a filigree may be planted if deemed necessary.

The patient made an uneventful recovery, and now walks well.

The drawings, based on the excellent figures given by Haines, are diagrammatic; sutures are omitted for the sake of simplicity.

REFERENCES.

[1] *New York State Med. Journal*, 1916, xvi, p. 511. [2] *New York Med. Journal*, January 10th, 1917.

BOOT HEELS AS A CAUSE OF FLAT-FOOT, SOLDIER'S HEART, MYALGIA, ETC.

BY

SYLVESTER D. FAIRWEATHER, M.B., CH.B.ABERD.,

CAPTAIN R.A.M.C.

IN a normal barefooted man the balance of the body is so perfect that practically no effort is required to keep erect. The weight rests on the heels and outer sides of the feet, not on the arch or inner sides of the feet.

If the heels are raised from the ground by boot heels even a quarter of an inch thicker than the soles the outer side of the foot is removed from the ground and the weight falls on the arch. The centre of gravity is also thrown forwards, and in a man of 5 ft. 7 in. the head is thrown nine inches off the vertical by a heel three-quarters of an inch high. To remedy this, and to prevent falling forwards, the back muscles and the extensors of thigh and foot come into action. The peroneus longus and brevis, while extending the foot, also evert it, and the tibialis anticus which supports the arch and inverts the foot gets elongated and ceases to act. Thus, when an ordinary boot is used, even with a low heel, three influences tend to flatten the arch, namely:

1. The weight of the body, resting on the arch, instead of on the heel and the outer side of the foot.
2. The peroneus longus and brevis pulling the arch down.
3. The tibialis anticus is out of action, and no longer supports the arch.

A strongly formed foot is able to resist these influences, so that when the boot is removed the arch appears perfect, but if skiagraphed with the boot on, and off, flattening and lowering of the arch are evident. Unfortunately, when a foot is examined by a medical man he does not see what goes on inside the boot, and when weight is put on a bare foot the arch is not flattened as with the boot on. Even when a foot is able to preserve its arch, the elasticity of the arch is lost while the boot is worn, as the peroneus longus and brevis anchor the foot in the everted position, and the tibialis anticus is idle. The muscles concerned in preserving the erect position are in continuous contraction, and get spastic, or "muscle bound," and the calf and back muscles are consequently most affected in "myalgia." With average heels (three-quarters of an inch thicker than the soles) the calf muscles contract three-quarters of an inch, even when standing, leaving

only a very limited amount of further contraction possible. Hence the fact that so many men cannot jump the trivial height of 3 ft. In some cases the strain on the peroneal muscles gives rise to painful spasm. When the boot heels are discarded the spasm is relaxed and operative treatment of the peroneal tendons is rendered unnecessary. In a flat-footed person, with ordinary boots, the peroneal muscles pull on the flattened arch, tending to produce a downward convexity, and causing pain by pulling the flattened arch against the sole of the boot. With heelless boots the peronei are no longer in continual contraction, and as the weight is no longer on the arch, the strain is removed from the plantar muscles and ligaments, and the arch gets a chance to recover. With heels the spastic condition of the calf muscles makes the front of the foot point downwards, and in walking the knee has to be lifted to let one foot clear the ground and pass the other. An American Indian is not handicapped in this way; he slightly dorsiflexes his foot and glides it past the other, swinging the leg from the hip-joint and not requiring to raise the knees. His foot scarcely leaves the ground, so that there is no jar when his heel again touches the ground, and consequently no need for rubber heels. He uses the pendulum movement recommended in "Infantry Training," a movement which is rendered impossible by boot heels. Hence the reputed "superior stamina" of the Indian. With heeled boots he would have no more stamina than a white man. His flat feet (caused by his method of carrying weights) do not handicap him, as his moccasins are heelless. A soldier of 5 ft. 7 in., weighing 154 lb., and wearing a heel three-quarters of an inch thicker than the sole, has to exert strength enough to be constantly lifting 56 lb. from the ground in trying to retain his balance.* In a man loaded with 60 lb. equipment this means that he has to support 116 lb., nearly doubling the weight he is supposed to carry. This is doubtless one factor in the etiology of soldier's heart, as every heart, even if healthy, is not equal to this strain.

A woman of 5 ft. 6 in., with an arch six inches wide, and wearing a heel two inches high, is thrown two feet off the perpendicular. Muscular effort cannot bring her back to the normal vertical line, and accordingly she keeps the tarsal and metatarsal bones in line with the tibia, and uses the metatarso-phalangeal joints as a heel, the boot heel being chiefly used to assist balance and not to support weight. This involves much strain, and to preserve the lumbar curve without overtaxing her back muscles she is obliged to use corsets. The use of waist belts by men is similarly explained. The waste of neuro-muscular energy in retaining an erect posture when wearing heels is very great, and must play a large part in producing hysteria, neurasthenia, and possibly refraction troubles. Heels are also partly responsible for hammer toes, the long flexors of the toes being supplied by the same nerve as the calf muscles, and getting spastic with them.

Sprained ankles, the stoop of old age, asthma, varicose veins, weak back, and spinal curvature may also be partly due to the effect of heels. Cycling and tiptoe exercises tend to produce flat-foot, as they develop the calf muscles and peronei, and neglect the tibialis anticus which is the most important muscle concerned in preserving the arch.

A rational boot should have the soles and heels of the same thickness. Under the arch of the foot the sole should be curved with a convexity upwards, but not so convex as to cause pressure on the sole. The leather could be reinforced by spring steel from the heel to the ball of the foot. The inner edge of the boot should be straight, so as to allow the big toe to be in line with the inner side of the arch, as in American boots. The front part of the sole should not be curved up, but flat; with "pendulum" gait the toe of the boot does not hit the ground. A boot as suggested, with an arched sole and heel of the same thickness, is in appearance almost indistinguishable from an ordinary boot. The arching of the sole is not necessary to cure flat-foot, but it looks better, and allows the boot to be laced firmly, thus compensating for the loss of muscular sense that occurs in a foot when any sort of footwear is used. In hopeless cases of flat-foot a boot with no heel will at least be more comfortable than the present day boot. The spastic calf muscles will not relax immediately the boot heels are discarded, and consequently at first some awkwardness will be felt in walking. Very soon, however, the tibialis anticus develops, the ankles get stronger, the legs straighter at the knees, the foot gets shorter as the arch recovers, and any tendency to eversion disappears. The figure gets more erect, the chest capacity increases, and walking becomes a pleasure, and as the neuro-muscular energy (wasted in neutralizing the forward tilt caused by boot heels) becomes conserved, the health, strength, and stamina improve.

* This can be proved roughly by using a log of this weight, tilting it by a block of wood three-quarters of an inch thick to represent the boot heel, and attaching a rope to the centre of the log, and leading it over a pulley and attaching weights.

SUMMARY.

1. To cure flat-foot the heel and sole should be of the same thickness.
2. Arch supports and thickening inner side of sole and heel fail to cure because the os calcis is raised from the ground with the aforementioned results.
3. Boot heels rob the arch of its elasticity instead of supporting it.
4. Exercises should aim at developing the tibialis anticus, and not the calf muscles as hitherto taught.
5. A heel even a quarter of an inch thick is harmful.
6. Flat-foot is no disability if heelless boots are worn, except in hopeless cases.
7. Boot heels help to produce soldier's heart, myalgia, and numerous other ailments.
8. With heelless boots women would not require corsets.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A SIMPLE SPLINT FOR FACIAL PARALYSIS.

IN the case of injury to a motor nerve—for example, the radial (musculo-spiral)—the muscles supplied by it are paralysed and the contraction of opposing sound muscles, aided in the above case by gravity, when splinting is not resorted to, overstretches the flaccid paralysed muscles.

It is universally recognized that where recovery is going to take place it will be delayed and rendered imperfect if this overstretching is permitted to take place. In the limbs this overstretching is easily corrected by appropriate splints. In injury to the facial nerve of one side, with resulting facial paralysis, overstretching of the paralysed muscles will be caused by the contraction of the muscles of the opposite side, especially when the latter muscles are put into use, as in smiling, laughing, talking, and during mastication. Moreover, the sound muscles will be placed at a disadvantage, as their points of attachment are drawn nearer to the point of origin. Not only is one side paralysed, but the sound side is hampered in its range and power of action. Consequently, the patient experiences a double difficulty in talking and masticating.

To avoid this, the following simple yet effective appliance has been invented and brought to my notice by Miss Jennings, who is assistant in the electrical and massage departments at No. 1 Australian Auxiliary Hospital at Harefield. It was used by her before the war, and has been in use at Harefield for over two years. It consists of a piece of malleable German silver wire, bent so as to hook into the corner of the mouth and over the ear of the affected side, like the curl side of a spectacle. It is easily adjusted by bending the ear piece till the tension is correct and comfortable. Its advantages are: (1) Simplicity and lightness; (2) prevention of overstretching of the paralysed muscles, and so rendering recovery more rapid; (3) it gives the sound muscles a fixed point to work against and by preventing shortening renders them more effective in action; (4) it is greatly appreciated by the patients, who state that they feel more comfortable and can masticate much better. If properly adjusted there does not appear to be any tendency to make

the mouth sore, and it is so simple that any one can, with a pair of pliers, easily make the splint in a few minutes.

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THE CAUSE AND CURE OF CONSTIPATION.

THE habit of swallowing aperients is the direct cause of habitual constipation. Liquid faeces pass along the large bowel too easily, thus causing it to lose peristaltic tone, as it has not the normal work to do. In the sigmoid flexure and rectum normal faeces form a compact solid mass which is expelled by a strong muscular effort. If an aperient is taken this compact mass is largely broken up, and expulsion thereby made easier. Easy expulsion means less muscular effort; less muscular effort is followed directly by deterioration of the quality and tone of the muscles concerned.

The cure of constipation calls for patience and perseverance. A convenient hour must be chosen, and at this time every day a serious attempt must be made to defaecate; the endeavour, if unsuccessful, should be continued for from fifteen to thirty minutes. The endeavour trains and develops the muscles. If still unsuccessful, a suppository of soap or glycerine may be inserted twice a week. The most obstinate case of constipation can be cured in this way in from one to six months. As soon as a regular habit of defaecation is established there will be no further trouble; change of environment and diet may cause some slight embarrassment, but the abdomen and its contents being well developed the difficulty is overcome in a few days. During illness there may be constipation, but on recovery the habit of defaecation is soon re-established. If lacerations, however slight, of the perineum were invariably stitched, the muscular effort necessary to empty the rectum would not cause displacement of the uterus.

Conclusions.

1. The child should be encouraged from infancy to form a regular habit of defaecation.
2. The giving of drugs to children, except under medical supervision, should be prohibited.
3. The bowel ought to be stimulated by a suppository in preference to taking aperient medicine, because the suppository stimulates but does not lessen muscular effort. The aperient softens the faeces and so causes less muscular effort to be made during defaecation.
4. The advertisement and display of aperients ought to be attacked. The local medical society ought to publish propaganda leaflets setting out that aperients are not only quite unnecessary to good health, but harmful, and that constipation can be cured by self-effort.

Derby. A. C. ADAMS.

RESTORATION OF FUNCTION AFTER PENETRATING WOUNDS OF JOINTS.

MAJOR EVERIDGE appears to have been working on the knee-joint on the same lines as I have on the elbow-joint since 1913. In our conclusions we are agreed. It is essential in all cases of injury or sepsis of these joints to establish at a very early stage, usually at the end of a week, gradual progressive movements. I have been working with a loose-jointed Thomas type of arm splint, the variation of position being attained by a pair of webbing straps attached above to the ring and below to the bars of the splint near the wrist. By varying daily the tension of the straps, so that in the course of a week the joint is acutely flexed, and then relaxing them daily until the joint is extended, I have got most gratifying results in very severe fractures of the elbow-joint and in cases of septic compound fractures of the humerus.

Major Everidge's apparatus is ideal, but a little complicated. I venture to suggest that an attempt be made to simplify it by using the ordinary beam suspension available in all hospitals; and to get the daily or more frequent minute degree of variation of position by webbing straps from the back of the ring to the irons of frame near the ankle-joint. Too much emphasis cannot be put on the necessity of early and gradual movements of all joints we have to deal with in this war. Unless constantly supervised the patient will get his limb comfortable and still, instead of varying the joint position frequently and so preventing the formation of adhesions. In examining numerous radiographs of the majority of compound fractures often not involving the joint, the most striking point is that the joint appears hazy, like a bad radiograph. Comparing the sound joint radiographed on the same plate, it is seen at once that the fault is in the joint of the injured limb, not the radiograph. I believe this hazy condition indicates a degree of septic arthritis, and certainly these joints, if kept still for a very short time, form firm adhesions. Forcible movement makes them worse, but a frequent minute variation of the angle of flexion or extension of the joint gives a good result. Major Everidge's paper will do great good by drawing attention to the importance of early movement in all cases of joint injury, even when septic.

Reading. W. J. FOSTER, F.R.C.S.

"CHRONIC" DIPHTHERIA.

A FEW days ago a boy, aged 7, was brought to me with a twelve months' history of nasal discharge, attended by repeated attacks of sore throat, earache, cervical adenitis, general malaise, and drowsiness. I noted a muco-purulent nasal discharge, excoriation of the nares and upper lip, slight enlargement of the right tonsil and of the cervical glands on that side, and a temperature of 99.6°. A throat swab sent to the public health laboratory proved to be positive for diphtheria.

This looks like a case of a carrier in whom, for over a year, there have been repeated mild attacks of diphtheria of such frequency as almost to constitute a *chronic* condition of the disease.

Sheerness. W. A. NORMAN-ROBINSON, M.D., Ch.B.

Reviews.

HIRST'S "OBSTETRICS."

PROFESSOR HIRST'S well-known *Textbook of Obstetrics*,[1] which appeared first in 1898, has already had a long career of usefulness and popularity, and the recently published eighth edition is likely to maintain its already high reputation.

The author states in his preface that he has aimed at a condensation of the text and the omission of all unessential matter. In this particular instance the aim was peculiarly laudable, for our recollection of the last edition was that the book was being allowed to run to seed by the introduction of unessential, and in some instances almost irrelevant, matter. The stern application of the pruning knife (or shall we say the blue pencil?) was needed. The author would indeed do well to pursue his aim with the next edition also, as there are still pages of matter which might advantageously be omitted, or transferred to his companion volume on gynaecology. The publishers might also note that sixteen pages of advertisements are fifteen, if not sixteen, pages too many in an already heavy book.

Professor Hirst is an operating gynaecologist as well as an obstetrician, and is a prominent opponent of any efforts to divorce the two subjects. In many respects his volume is eloquent evidence of the advantages of the unification which he has advocated, although, as indicated above, we think he has introduced an unnecessary amount of gynaecology into the book. It is more in the general outlook of the author, in his thorough practicalness, and in the lucidity of his teaching, that one realizes that he has been accustomed to deal with both subjects—with his hands as well as his head—and therefore takes a wide and comprehensive view. His knowledge of obstetric literature and history is encyclopaedic, but in his teaching the art of midwifery is ever given its proper share of attention.

Professor Hirst's opinions are always frankly and unequivocally expressed and his reasons therefor explained. It is positively refreshing to meet an author who has the courage to describe Abderhalden's serum reaction as already discredited. We shall be surprised if before long there is not a chorus of assent from other observers. With regard to scopolamine-morphine treatment in labour

[1] *A Textbook of Obstetrics.* By Barton Cook Hirst, A.B., M.D., LL.D., F.A.C.S., Professor of Obstetrics in the University of Pennsylvania, etc. Eighth edition, revised and reset. Philadelphia and London: W. B. Saunders Company. 1918. (Med. 8vo, pp. 863; 715 figures, 38 in colour. 21s. net.)

the author's attitude is for once Laodicean, but surely the method deserves description, unless, indeed, it has been described *ad nauseam* in the American lay press. We also looked in vain for any ordered discussion of the use of pituitary extract and its place in the obstetric armamentarium.

JOHN RADCLIFFE, HIS FELLOWS AND FOUNDATIONS.

Books dealing with new work of urgent importance may excusably be brought out with all dispatch, but others gain by deliberate composition and repeated critical revision. This is particularly true of historical books, and of this category *Dr. John Radcliffe: a Sketch of his Life, with an Account of his Fellows and Foundations*,[2] is an admirable example; it is, indeed, perhaps doubtful whether Dr. J. B. NIAS, who for years has quietly enjoyed his hobby of collecting biographical data about his predecessors as Radcliffe Travelling Fellows, would have brought his scholarly and fastidious articles before the public eye had it not been for the insistence of the President of the Royal College of Physicians and of the Regius Professor of Medicine at Oxford. The account Dr. Nias gives of Radcliffe contains new matter, and produces a more favourable impression of the man than that conveyed in Pittis's *Life* and by Macmichael in the *Lives of British Physicians* and in the well-known *Gold-headed Cain*.

After carefully looking into the question Dr. Nias comes to the opinion that the Radcliffe Travelling Fellowships were originally intended to benefit the university directly by improving the raw material for appointments to the Regius and other chairs of medicine, and not, as they have since become, for the advantage of the profession at large. The Oxford chairs were almost of necessity filled from the narrow circle of resident medical graduates, whose professional training mainly consisted in an armchair study of Hippocrates and Galen; to correct this state of affairs nothing could be better than an arrangement which ensured a practical acquaintance with the great medical centres of Europe. Radcliffe and Rhodes, the two great benefactors connected with the older university, may, indeed, be compared in their points of view and personalities. The tenure of the original foundation was ten years with a yearly stipend of £300, and on this basis 31 Fellows were elected between 1715, the year after the founder's death, and 1850, when the elections were arranged to take place triennially. Of the 58 Fellows under the new foundation, 48 are living, and their biographies are less detailed; in fact, the author's interest and researches were mainly directed to the older foundation. In the attractive account of the first Radcliffe Travelling Fellow, Noel Broxholm, it appears that up till about 1740 it had been the custom to send to Oxford or Cambridge, as to London, for consultants, but that when county hospitals or infirmaries with attendant physicians sprang up all over England, Oxford ceased to be the centre for consultants in the Midlands; as a result the Radcliffe Travelling Fellows were lured away from their *alma mater*, and the pious founder's project began to be nullified. The account of the Radcliffe Library is contributed by Dr. W. Hatchett Jackson, that of the Radcliffe Observatory by Dr. A. A. Rambaut, and the short account of Radcliffe and University College by the Master, who was instrumental in establishing in 1907 the Radcliffe prize of £50, awarded every other year, for medical research.

Beautifully illustrated and brought out, this work will appeal to all lovers of medical history and will personally attract the medical graduates of the Oxford school, and especially those fortunate enough to have been Radcliffe Fellows or prizemen.

BAYLISS'S "GENERAL PHYSIOLOGY."

THE general appreciation of Professor W. M. BAYLISS's remarkable work, the *Principles of General Physiology*,[3] fully reviewed in our issue of February 19th, 1916, is shown by the need for a second edition, which was apparently completed last year. The amount of fresh material that has appeared in the interval between these two editions, and demands notice in a work on physiology even with the wide outlook on contemporary knowledge that forms such a striking feature of Professor Bayliss's treatise, is comparatively small, but the volume has been carefully revised, and some passages have been rewritten. This is a book for the advanced and not for the examination-haunted student. It is very different from an ordinary textbook, and being the basis of the lectures of a professor anxious to bring before his audience physiology as a science in relation to other sciences is particularly attractive and interesting; it should be in the hands of every demonstrator and teacher of physiology. Its bibliography is select and educational in indicating the steps in the ladder of our physiological knowledge; and an unusual feature is the series of portraits of the leaders in physiological researches, most of which are extremely successful.

[2] *Dr. John Radcliffe: A Sketch of his Life, with an Account of his Fellows and Foundations.* By J. B. Nias, M.D., M.R.C.P., Radcliffe Travelling Fellow, 1882–5. Oxford: At the Clarendon Press. 1918. (Demy 8vo, pp. 147; 13 illustrations. 12s. 6d. net.)

[3] *Principles of General Physiology.* By William Maddock Bayliss, M.A., D.Sc., F.R.S. Second edition, revised. London: Longmans, Green, and Co. 1918. (Roy. 8vo, pp. xxiv + 858; 261 figures. 24s. net.)

NOTES ON BOOKS.

THE science of dietetics is still in the making, but has an extensive literature. An excellent review of it is furnished by three American authors in a volume entitled *Nutrition and Clinical Dietetics*.[4] The book is divided into four parts. The first gives a general account of foods and normal nutrition, the needs of the body so far as each chemical class of ingredient being considered separately; it is argued that in the case of protein from 100 to 150 grams a day should be regarded as the normal or desirable quantity, rather than the smaller amounts recommended by Chittenden, and, more recently, Hindhede. The second part gives an account of the chief foods (and drinks) in common use. The third deals with feeding in infancy and childhood, and the last, more than half the whole volume, with feeding in disease. The chemistry of alimentation is kept in view throughout, and the reader is everywhere encouraged to remember the energy requirements of patients; the authors are particularly emphatic in their advocacy of a liberal diet in enteric fever, with a heat value of four or five thousand calories a day. The book is well written, and may be recommended as a textbook of dietetics.

A third and revised edition of Dr. EDMUND SPRIGGS's valuable pamphlet on *Food and How to Save it*[5] has now appeared. Since the publication of the second edition in January last, the extension of compulsory rationing to include meat, fats, and some other foods, as well as sugar, has made it necessary to recast the diets and to make other alterations. But with a food situation which changes from month to month the figures given in the chapters on rations can only apply to the allowances in force at the date of publication. A useful chapter has been added on meatless dinners. The author records his special indebtedness for the aid given in preparing this edition by Professor Starling, Director of Education of the Ministry of Food. We are asked by the Ministry of Food to state that a limited number of copies are available (gratis) for public speakers, and others interested, on application to the Ministry of Food (Room 605), Palace Chambers, Westminster, S.W.1.

Sir JOHN BLAND-SUTTON has the knack of doing interesting things and the power of so describing them to others that they appreciate the atmosphere. His latest experience has been a voyage with a convoy. He gave an account of his experiences in the *Morning Post*, and has now reprinted it in a pamphlet for private circulation. He describes the mustering of the convoy and their shepherding by flag signals in the day and by lights at night, and also the wireless by which the cruiser—and the cruiser only—gets into communication with the destroyer escort, and picks up the time from the Eiffel Tower and news of the war. On the cover he has put a very excellent woodcut of the strange fish chimera, because as the destroyer approached the cruiser with the sharp line of her bows and the bilateral hawse-pipes she "made her look like a Chimera progressing through the water, stern and dignified, like a sea-god."

[4] *Nutrition and Clinical Dietetics.* By Herbert S. Carter, M.A., M.D., Associate in Clinical Medicine, Columbia University, etc.; Paul E. Howe, M.A., Ph.D., Assistant Professor of Biological Chemistry, Columbia University; and Howard H. Mason, A.B., M.D., Instructor in Diseases of Children, Columbia University. Philadelphia and New York: Lea and Febiger. 1918. (Med. 8vo, pp. 665. 5.50 dols.)

[5] *Food and How to Save it.* Third edition, including Compulsory Rations. To be purchased through any bookseller or directly from H.M. Stationery Office. (3d.)

We have received for review Spanish translations of two English medical works—namely, SARGENT and RUSSELL'S *Emergencies of General Practice*[6] and WOODWARK'S *Manual of Medicine*.[7] Both are published by the Oxford University Press, and they ought to be valuable to Spanish and South American students, for whose benefit they have been translated.

Sir William Ramsay's life and work as briefly summarized by Professor CHAUDHURI[8] will give Indian students a fair idea of the man and his position as a chemical discoverer. This little book grew out of a memorial essay written for a college magazine, and, though it is difficult to avoid doing so, it is hardly fair to compare it with the fine life of Sir William Ramsay written by Sir William Tilden after a friendship of twenty-five years. There are a few misprints, and in places the method of expression and construction are somewhat unusual. Thus, the second chapter, on Sir William Ramsay's researches in pure organic and physico-organic chemistry, begins, "The researches of Professor Ramsay which will pass down to posterity and are destined not to blush unseen," etc., and the book closes with the well meant sentence: "Long might he have lived to further enrich the science which he loved so well." But these are minor criticisms, and no doubt this cordial appreciation will fulfil its purpose.

We have received from Captain R. C. T. EVANS, R.A.M.C., a pamphlet entitled *Apprenticeship v. Conscription*, first issued ten years ago, in which he puts forward a scheme for combining general technical education of youths between the ages of 14 and 17 with a sound military training. For this combined training residence in special technical institutes is suggested. Copies of the pamphlet can be obtained free from the publishers, Messrs. Stanbrook and Sons, Herne Bay, Kent.

[6] *Emergencias en la Practica de la Medicina y de la Cirurgia* By Percy Sargent, M.B., B.C.Cantab., F.R.C.S., and Alfred E. Wells, M.D., B.S.Lond., F.R.C.S. London: H. Frowde, and Hodder and Stoughton. 1917. (Demy 8vo, pp. xi + 496; 98 figures. 17s. 6d. net.)

[7] *Manual de Medicina.* By A. S. Woodwark, M.D., M.R.C.S. London: H. Frowde, and Hodder and Stoughton. 1917. (Cr. 8vo, pp. xi + 415. 12s. 6d. net.)

[8] *Sir William Ramsay as a Scientist and Man.* By Tarini Charan Chaudhuri, M.A., Professor of Chemistry, Edward College, Pabna. With an introduction by Panchanan Neogi, M.A., Ph.D., Professor of Chemistry, Government College, Rajshahi. Calcutta: Butterworth and Co. 1918. (Pp. 65; 1 illustration. Rs. 1.8 net.)

MEDICAL AND SURGICAL APPLIANCES.

Drop-foot Appliance.

WE have received from Mr. C. H. Hough, medical officer in charge of the Ethel Hedley Auxiliary Orthopaedic Hospital, Windermere, a description of an apparatus which has been found efficacious and comfortable in the treatment of drop-foot. It is the invention of Mr. J. M. Sladen of Windermere. The appliance consists of a leather anklet 5 in. wide, in front of which is fixed a leather-covered gun-metal case, C, and a spring, S, $\frac{5}{8}$ in. wide, slides into the case, C, the top end of the spring, SS,

FIG. 1.

FIG. 2.

being thickened to take the wear. A strap, $\frac{3}{4}$ in. wide, passes through the loop at L, the buckle being central, as shown. The strap, which passes through the metal protector plate, P, to prevent wear, buckles round the instep. The spring is stated to be of sufficient tension to return the foot $1\frac{1}{2}$ in. Among the points claimed for the apparatus, which weighs 7 oz., are comfort, no special boot required, simplicity, neatness, lightness, adaptability, with power to vary the spring to suit the patient. The anklet will suit either foot, but the patient can adjust the buckles more easily if they are placed on the inside, as shown in the illustration.

THE LABORATORY DIAGNOSIS OF VENEREAL DISEASES.

IN April, 1917, as we have already noted in these columns, the Medical Research Committee invited a special committee "to consider how far it may be practicable and desirable to obtain the standardization of routine pathological methods," and to report to them. The committee consists of Colonel J. G. Adami, F.R.S., Major F. W. Andrewes, F.R.S., and Professor William Bulloch, F.R.S. They have now presented two important reports, which are published together by the Medical Research Committee, on the laboratory diagnosis of gonococcal infections, and on the methods for the detection of spirochaetes.[1] Colonel L. W. Harrison, D.S.O., was invited to co-operate in the consideration of these subjects, and joined the committee for this purpose.

Gonococcal Infections.

In the introduction to the first report the committee calls attention to the special difficulties associated with the diagnosis of gonococcal infections and the need for employing methods whereby the chances of error may be reduced to a minimum. Just as a wrong positive diagnosis may inflict grave injury on the individual, so a wrong negative diagnosis may injure the family of the individual and the community to an even greater extent. A diagnosis cannot at present be made with certainty in all cases by bacteriological methods alone, for there are latent cases of gonorrhoea in both sexes which fail to react to any test hitherto devised; nor can bacteriological evidence always replace clinical evidence, but it is an adjunct whose value is greatly increased when it is entrusted to a thoroughly trained bacteriologist employing the best methods.

With regard to the various methods and their limitations the committee deals first with the recognition of gonococci in films; they hold that a positive diagnosis may be justified from microscopical examination of films alone (1) when the clinical history and appearances are those of an acute gonorrhoea; (2) when the proper technique has been employed; and (3) when the observer is so thoroughly familiar with the appearances of the gonococcus in stained films as to be beyond the danger of confusing other micrococci with it. Recognizing that the danger of this confusion is very real, a plate is appended to the report showing accurate coloured reproductions of gonococci as seen in films, and of other micro-organisms which are apt to be present in discharges from the genito-urinary passages. Where, in the acute discharge, microscopical examination is negative, where the clinical history and appearances are doubtful, and where chronic gonorrhoea is indicated or suspected, the diagnosis cannot rest on microscopical examination alone, and its results must be confirmed by cultural and other methods. Further, the gonococci, when apparently eliminated from the primary focus, may still lurk for months or years in the tissues. Here neither microscopical nor cultural investigations of the external passages give positive results, and an indirect method is needed, such as complement fixation.

After enumerating the localities to be examined for the gonococcus in each sex, the committee discusses the methods for its identification in film preparations. The diagnosis, they say, cannot be based simply on the presence or absence of intracellular diplococci, even if of characteristic shape. The common practice of diagnosis by single stain methods alone is therefore not permissible. For official purposes microscopical examination of the gonococcus must be by Gram's method. The many possibilities of error in the original method are enumerated. Of the various modifications which have been proposed in order to obviate these fallacies the committee regards the technique described by Jensen of Copenhagen as the best, and recommends that it be employed to the exclusion of the original method. As to the limitations of Gram's method in the diagnosis of gonorrhoea, the committee considers that these do not seriously affect the diagnosis of the one class of cases in which, in their view, microscopical diagnosis alone gives consistent results—namely, the active acute cases.

[1] Medical Research Committee: Special Report Series, No. 19. To be purchased through any bookseller or directly from H.M. Stationery Office. 1918. Price 1s. net.

Turning to the cultivation of the gonococcus the committee notes that the number and diversity of the culture media employed appear to be an index of the difficulty of cultivating the organisms and the dissatisfaction which the authors have felt with the media devised by others. A series of comparative tests was carried out by Captain David Thomson at the Rochester Row Military Hospital, the three most satisfactory media being Thomson's human plasma-glucose agar, Cole's tryptic blood agar, and Gordon and Hine's trypsinized pea extract agar, of which the methods of preparation are given in an appendix. With regard to the production of a focal gonococcal reaction, caution is recommended in the adoption of this procedure, owing to the danger, for instance, of lighting up a latent iritis or salpingitis.

Since the conscientious examination of a case of suspected chronic gonorrhoea may develop into a lengthy process, needing repeated attendance of the patient and examination by trained specialists, some test is needed which will more simply indicate the presence of the gonococcus in chronic disease. The complement fixation test, like the Wassermann test, has a delicate and precise technique, and satisfactory results are only obtained by those with adequate training in serological methods. It has been extensively employed in the United States, but not as yet in this country. The American literature shows, on the whole, a striking uniformity in the results obtained. The advantages and disadvantages of this indirect method of diagnosis are contrasted by the committee, and the conclusion is drawn that while it cannot replace other methods of diagnosis it may, in certain cases, be the only laboratory means by which a gonococcal infection may be diagnosed. It is most likely to be of value in cases of metastatic infection, where the gonococcus is hard to demonstrate directly. As in the case of the Wassermann reaction, the committee cannot at present recommend any one standard technique for complement fixation, but the methods of four careful observers are appended, and workers in this country are invited to report their results and suggest improvements. It is recommended that steps should be taken to secure the provision of an official standard polyvalent antigen; that in tests made for official returns the method employed should be clearly stated; and that the laboratories in which such tests are performed for the public services should be few rather than many, those selected for Wassermann tests being utilized for this purpose, and reports being accepted only from pathologists thoroughly trained in the technique.

The Detection of Spirochaetes.

In the second report the committee brings together its conclusions as to the most satisfactory methods for the microscopic detection of *Spironema pallidum*—that being the name recommended for the organism of syphilis in a note on nomenclature by Mr. Clifford Dobell, F.R.S., printed in the appendix. The committee lays the greatest emphasis upon the importance of the detection of the *spironema* as affording the earliest means of diagnosis at a period when clinically a definite decision cannot otherwise be formed. "Treatment undertaken in the early primary stage is relatively simple and assured, and is a matter of weeks; after the infection has become generalized, with development of a positive Wassermann reaction or secondary lesions, it is prolonged, uncertain, and a matter of months. It is bad practice to defer diagnosis and treatment until the typical chancre has developed." Every localized lesion, however small and atypical, must therefore be suspected, for a simple papule tending to ulcerate may appear within a few days after infection. The rule should be: Examine every such eruption for spirochaetes, and if these are not found at first—try, try again.

Practical directions are given for the collection of material for diagnosis and for the demonstration of the spirochaetes, and an authoritative description by Mr. J. Edwin Barnard, president of the Royal Microscopical Society, of the detailed technique of dark ground illumination is embodied in the report. A list of Fellows of the Royal Microscopical Society is being prepared, to whom reference may be made for assistance in this matter, or for help in setting up and adjusting microscopic apparatus. Inquiries should be addressed to the Secretary of the Society, 20, Hanover Square, W., or to the Medical Research Committee.

Concerning the technique as a whole, the committee makes the following positive statement: "The most reliable methods of detection are so simple and expeditious that there is no excuse for neglect to utilize them."

Lastly, the committee finds no sufficient evidence that what is clinically known as "soft chancre" or "soft sore" is a specific disease induced by a single species of micro-organisms. It is recommended, therefore, that a diagnosis of soft chancre be founded on clinical evidence, and this only after syphilis has been excluded by observation extending over a period of twelve weeks. A similar recommendation is made with reference to conditions of balanitis.

THE FUTURE OF THE MEDICAL PROFESSION.

BY

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FORMERLY PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

SAUL among the prophets was not, perhaps, a more conspicuous figure than Major-General Sir Bertrand Dawson among medical reformers. Much longer than I remember, and my memory is not short, medical men have been trying to reform themselves or the public, with more or less indifferent results. I am indebted to Sir Bertrand Dawson for the somewhat inappropriate heading of this article, which, however, will serve. It seems to me a very inopportune time for reforming anything when the best brains of the country are busily engaged in the prosecution of the war. However, I suppose the fifth and sixth-rate politicians find this a favourable opportunity to assert themselves, and busily occupy their mediocre intellects with educational and medical reforms. We are told that these reforms will not wait, which means that politicians will not allow them to wait, but it is to be hoped that the comrades of the great war will soon relegate these reformers who have, in the absence of better men, acquired place and power, to that obscurity from which they should never have emerged.

In all these medical reforms the general practitioners are the pawns in the game, and they will only have themselves to thank if they again allow themselves to fall into the wily fowler's snare. So far as I am personally concerned, I must at once candidly confess that I am more interested in the future of the British race than I am in that of the medical profession, and it is because I foresee that the proposed reforms will lead to the deterioration or weakening of the mental, moral, and physical fibre of the nation that I am opposed to them. The medical profession exists for the benefit of the public—an axiom which medical men are sometimes apt to forget—and no doubt the law of supply and demand will always provide such medical men as the public deserve. A highly intelligent race would demand and secure an intellectual and well-educated profession, but I am afraid that, as Karl Pearson says, we are not breeding intelligence nowadays as we did one hundred or more years ago. I sometimes wonder whether this old country will be in the hands of a race of degenerates long before the coal supply gives out. Our reformers would readily promise us a new heaven and a new earth by the time the war is over, but I am afraid the millennium is not yet, and it would be very rash to assume that it is.

At the annual meeting of the Institute of Public Health in 1907 I gave the address on preventive medicine, which at the time attracted much public attention. In 1911, at the annual meeting of the Canadian Medical Association, I gave the address on medicine ("On preventive medicine, the medicine of the future"), and I followed up the same line of thoughts in my presidential address to the British Medical Association in 1912, so I can claim that my present views are not of recent development.

My antipathy to the so-called National Health Insurance Act, which has no more to do with health than the man in the moon, was based on my belief, stronger now than ever, that it was and is a retrograde step fraught with danger to the public. Those medical men who took my advice and stood from under the Act are those who have maintained their own self-respect and retained that of the public. I do not know one who has regretted his action, but I know scores who have not a good word to say for the Act which they are helping to administer.

I would like now to warn general practitioners to be careful before they allow themselves to be ensnared by this proposed Ministry of Health, which at present looks more like a Ministry of Disease. I have no intention of following the winding paths of Sir Bertrand Dawson's very interesting address, but would refer to some of his team work. I have no objection to teams; in fact, I strongly approve of such work when there is a good driver. I have never myself worked in a team, though I have made free use of the work of others, always with due acknowledgement. I know a distinguished Fellow of the Royal Society who says that he has never collaborated because he can do his own lying, but I know no Fellow of that august body who has been more actively engaged in the pursuit of truth, and no one who has attained more practical results. There is not a trace of pragmatism in his composition.

For the diagnosis of phthisis Sir Bertrand Dawson turns on the clinician, the bacteriologist, and radiographer. I am inclined to think that there must be some bungling and valuable time lost when the diagnosis has to be clinched by the radiologist. I do not in the least undervalue his work; the *x* rays afford a valuable exposition of existing facts, and in chest diseases have their negative as well as positive value. A distinguished radiologist recently told me about a physician at the front who had diagnosed a large number of cases of pneumothorax, but the *x* rays showed up the physician as well as the absence of air in the pleural cavity.

But what has all this got to do with prevention of tuberculosis or the health of the nation? Prevention is better than cure, and it is a poor way of improving the health by simply diagnosing and curing disease. For the last seventy years, and up to seven or eight years ago, there was a steady fall in the incidence and death-rate from phthisis, and a corresponding rise in the insane rate. Since 1911 there has been a gradual rise in the incidence of tuberculosis. I do not attribute this to team work, but it is certainly associated with the erroneous doctrine that heredity plays no part in tuberculosis. Very many years ago I met a highly intelligent man who was on a visit to an asylum to see his young daughter who was suffering from dementia praecox. He could not understand it, as he said there was not a trace of insanity on either side of his house. I pointed out that the closely allied condition of tuberculosis was prominent, and that he himself had spent the early years of his adult life abroad on account of phthisis.

Dr. D. W. Hunter, whose name I deeply regretted to see in a recent casualty list, said:

> The death-rate among idiots is about ten times that of the normal population at the same age. Further, of deaths of idiots about 80 per cent. are due to tuberculosis. Now an idiot has not even the resisting power necessary to die of phthisis; he dies of acute tuberculosis, death taking place in from three to six weeks from the onset of the illness. Surely here there is some inherited lowering of the soil. There are some 150,000 (estimated) of these defectives in England and Wales, and for every defective there are from six to a dozen of his relatives only a shade better than himself. Practically the same holds for insanity, yet we are asked to believe that a man cannot inherit a soil which will remain during his lifetime permanently below the average in resisting power.
>
> Until we have some restriction in the marriage of undesirables the elimination of the tubercle bacillus is not worth aiming at. It forms a rough, but on the whole very serviceable check, on the survival and propagation of the unfit. This world is not a hothouse; a race which owed its survival to the fact that the tubercle bacillus had ceased to exist would, on the whole, be a race hardly worth surviving. Personally, I am of opinion—and I think such opinion will be shared by most medical men who have been behind the scenes and have not allowed their sentiments to blind them—that if to-morrow the tubercle bacillus were non-existent, it would be nothing short of a national calamity. We are not yet ready for its disappearance.

When the Mental Deficiency Act was passed I prophesied that it would not reduce the output of mental defectives by 5 per cent., and my prophecy has come true, in fact more than true, as the physically and mentally fit are carrying on the war, while the derelicts are carrying on the race. The lowest fourth of the population are producing more than half of the next generation, and this they are encouraged to do by sentimental cranks. The honest hard-working men have not only to support their own families, but also those of knaves, fools, paupers, and wastrels of every description. We hear the constant cry: Preserve the babies, good, bad, and indifferent—the innocent little things, if brought up in a proper environment, will be, we are told, the flower of the nation. There is no equality in nature among children nor among adults, and if there is to be a much-needed improvement in the race we must breed from the physically, morally, and intellectually fit. The higher the intellectual evolution the greater the number of geniuses that are likely to be produced. There must be inherited innate qualities capable of development; a favourable environment will contribute to such development, but it can never create a genius. You cannot gather grapes from thorns, nor figs from thistles.

In 1912 and previously I stated that intelligence, physique, health, and longevity are innate and heritable qualities, but that morality is largely, if not entirely, an acquired and traditional characteristic. Dr. Mercier says, and says truly in the strict acceptation of the term cause, that heredity is not a cause of anything, but it is the favouring condition which led to the evolution of his brilliant intellect, and no other condition counts so highly for good and evil in the evolution of the race.

This war has shown that there is still in this country—and now largely in France—plenty of vigour and intelligence capable of producing a very high civilization, and it is to be hoped that when the war is over our comrades will clear away the forces of disintegration which are at present insidiously at work.

Recently there was an acrimonious discussion in the pages of the BRITISH MEDICAL JOURNAL concerning a supposed new patent that heredity and adaptation depend on the endocrine glands. The disputants seemed to fail to recognize that this is merely a modification of the doctrine that function precedes differentiation of structure, which, though not as old as the hills, certainly preceded Darwin and all ideas of evolution. I know a large number of intellectual Jews who present all the outward and visible signs of defective pituitary action; therefore I am inclined to think that the pituitary, unlike the thyroid gland, is not concerned with intelligence. The optime action of any gland, of course, depends on what function it has to perform. As society is very composite, it is well that every one should not be cast in the same mould, and that there should be as great a variety as possible—for example, you could not make a good stalwart policeman out of one with defective action of his pituitary, and one with overaction of his thyroid makes a poor, neurotic, palpitating soldier, and does not require to be doped with "heart pills" when he is to appear before a medical board.

Post-nasal adenoids, with consequent narrow nostrils, highly arched palate, small pharynx, narrow contracted chest, and rounded shoulders, is one of those diseases which has been under numerous teams of inspectors, clinicians, and surgeons; what have they done except wait till the disease is well established? Then the surgeon's practised hand comes in to scoop out the adenoids, usually after irreparable mischief has been done. This disease is due to an imperfect natural attempt to compensate for defective thyroid action. Its prevention depends on intelligent and early recognition of the condition of the thyroid gland, the use of small doses of thyroid to compensate for its defective function, and a mixture of calcium iodide and tincture of iodine to stimulate its action. It does not require a team of medical men to carry this out; all that is required is an intelligent nurse with medical supervision.

One of the greatest curses of the medical profession is turning a lot of teams into blind alleys: it lowers their ambition and contracts their outlook, so that they are never able to get out of the rut.

Look at the enormous amount of money which has been spent on special lighting of schools, shape of the desks, etc., in order to prevent or cure myopia, as if any such devices would alter the length of the eyeball. Many years ago I advised, and I do not doubt others did the same, that two myopic individuals should not mate; they should try as far as possible to eliminate and not to transmit their defects to their offspring. One poetic critic devoted a few verses to me, and finally excused himself—that love is blind.

We have a powerful heart team working at the so-called *effort syndrome*, which seems to consist of a conglomeration of symptoms which exist in various combinations in different cases, and have no necessary connexion with one

another. Causation is a matter for future consideration, and Newton's dictum is not even dreamt of. The work of this team is backed by a committee of eminent men in whom the critical faculty is not highly evolved. It has been interesting and amusing to see this team bowled out on the so-called "buffer salts" by Benjamin Moore's team, and this in turn capsized by the individual, Professor Bayliss. Dr. Moore has now returned to the arena, but without his team.

I have no wish to minimize in the least the valuable work which this heart team is carrying on, but still I think a little healthy criticism on a few points will do them no harm; it may help to show that they do not hold a monopoly of wisdom, and it might be well to pay a little attention to the work of others which, so far, they seem pleased to ignore. We are told that this *effort syndrome* is to be found in early heart disease, in early phthisis, and in exophthalmic goitre, but in those cases of irritable heart in soldiers with which they are dealing, the action of the thyroid is discounted.

The question of hyperthyroidism is capable of a direct test—namely, the tolerance or intolerance of these patients to thyroid administration. A large number of observations have been conducted from this point of view, others are in progress. So far as they have been taken they are opposed to the view that there is an unusual intolerance to extract of thyroid.

There is not one word about the dose or the quality of the thyroid, or its iodine content. Yet this bold statement is made in the face of the history of doping with "heart pills," and in face of the fact that their "effort syndrome" exists in cases of exophthalmic goitre; and the conglomeration of symptoms can be brought on in perfectly healthy individuals by large and repeated doses of physiologically active thyroid. An eminent man told me recently that he could not take more than one and a half grains without making his hand tremble. In 1904 I recorded two cases of exophthalmic goitre produced by the too free and prolonged use of tincture of iodine. These cases were rapidly cured by the removal of the cause, and the administration of lime salts.

The misleading term "capillary leucocytosis" might induce one to infer that there was an increase of the leucocytes in the blood circulating in the capillaries, but it is highly probable that the increase was in a mixture of blood and lymph, as there is no evidence that any means were adopted to get rid of the lymph in the capillary area from which the blood was withdrawn. This view is strengthened by the fact that the increase was chiefly in the lymphocytes. In the so-called digestion leucocytosis, which is undoubtedly a mixture of blood and lymph, the increase is also in the lymphocytes; moreover, with the increase in the leucocytes there is a corresponding decrease in the erythrocytes, but in these observations we have no such relative counts to guide us. The epoch-making work of the late George Oliver on "Tissue lymph circulation" was carried out by himself—if it had been left to a modern team it would not have been done yet, and not one of this team seems to know anything about his work. The study of at least modern medical history is worth cultivating. Karl Pearson says:

It is a very uphill battle to contest one after another the various dogmatic statements made by a small section of the younger medical men on the basis of statistics which are hopelessly inadequate, if they are not misread or perverted.

This conglomeration of symptoms, "effort syndrome," is associated with or induced by effort and cured by effort, *similia similibus curantur*, without any trouble about infinitesimal doses. No one could wish for anything more conveniently simple; Newton's dictum on causation and the laws of gravitation are not in it with this simple equation. Pawlow says: "It is only when the full etiology of disease is known that the medicine of our day can become the medicine of the future—that is to say, Hygiene in its widest sense." Why did Pawlow trouble his brain about causation, when teams of medical men are independent of such trifles?

I feel I must sincerely congratulate this team for having not only imposed their work on an eminent, even if hypo-critical, committee, but also for having superimposed it on the War Office, so that already some lieutenant-colonels are set apart to see that this treatment is carried out. "Set apart" is, I think, an apt terminological exactitude for the position of men who are not supposed to have a soul of their own, or who are so imbued with the value of this treatment as to have no misgivings in its employment. I am not now in any way detracting from the value of the drill sergeant, in fact I have always been a strong advocate of physical training. The active existence of many apparently hopeless cases of heart and lung diseases has been often much prolonged by the Oertel treatment, but Oertel devoted his attention to drink and food as well as exercise. Men with a vital capacity of only 80 cubic inches accomplished much greater feats than any described in this report on the "effort syndrome."

On the question of venereal diseases, Sir Bertrand Dawson closely approaches the truth when he says: "Prevention would be more closely allied with cure but for the fact that our pastors and masters are not endowed with grace, wisdom, and understanding." He does not grasp the nettle with sufficient vigour. My patience is sorely tried when I see a lot of married men who have never practised self-abnegation stumping the country and preaching a man-made standard of sexual morality to virile soldiers. The unctuous guid compound for sins they are inclined to by damning those they have no mind to. The soldiers are told not to have sexual connexion and they will not get venereal disease; but if, notwithstanding, they fall, then they are directed to come round the corner, where they will be treated and made whole men again. The lecturers do not even give the good advice of the sergeant-major, who told his men, "If you can't be good be careful." It is to me very deplorable that in the present day the only men who are trying to prevent venereal diseases are chemists who are selling a more or less perfect or imperfect antivenereal outfit. My method of preventing the spread of venereal diseases—and this is more applicable to peace than war times—is to encourage early matrimony among the healthy, not necessarily large families. Give the picked services of the country—the navy, the army, and the air forces, officers and men—sufficient pay to maintain themselves, their wives and families in comfort. In this way you would encourage the evolution of a healthy, vigorous, and intellectual breed. Do not waste all your money on degenerates; they are prolific enough without any encouragement.

With heart affections, again, the usual method is to start at the wrong end, to wait till the disease is established, and then begin to prevent or cure it by "an ordered régime in the open air with graduated exercises and amusements, which serve to tone up the body, of which the heart is part, to remove the heart from the realm of the patient's consciousness and restore confidence in his mental outlook." A functionally disturbed or diseased heart cannot be removed from the realm of consciousness by telling the patient that there is nothing the matter with it. A good many sudden deaths occur from such advice. In my experience patients are not intimidated by getting an honest statement as to what is the matter with them. Chronic diseases of the heart practically always arise from causes acting on the periphery, and are usually more easily prevented than cured. There are a few exceptions such as pericardial adhesions, but even here pericarditis arises in the periphery of the coronary circulation, and the general periphery should not be neglected in treatment.

Again, we are told of gastro-intestinal maladies that "such may need the clinical physician, the radiographer, the bacteriologist, the chemist, and the surgeon." Not a doubt about it, but what a rich harvest the surgeons have reaped from the ignorance of physicians and practitioners. Is this to be the millennium? It was said of an Edinburgh surgeon that his idea of heaven was a place where the blessed were continually cutting the damned for stone.

I frequently see cases of colitis with spasm where the practitioner is anxious to have the appendix removed. All that is required, as a rule, is to stop the milk diet and all those milk products such as sanatogen, and prescribe a decalcifying agent.

When the Insurance Act was brought out it was claimed that it would improve the health of the nation, Germanize it, and lessen the poor rate. Now a similar claim is trotted out for this Ministry of Health, or what I call a Ministry of Disease. Did ever an Act of Parliament reduce the expenses of any other department? The poor do not get a tithe of the poor rate.

Reforms are crowding thick and fast upon us. The Board of Education has issued a very instructive pamphlet on medical education by Sir George Newman. I have read it with much interest and appreciation from beginning

to end. He deals with the past, the present, and the future. He has evolved an excellent scheme—no better has ever been propounded—for the preservation of the unfit, and if carried out will provide work—I will not say adequate emoluments—for generations yet unborn of medical men, who will require to multiply in geometrical progression. This is to be the millennium, and yet I cannot recommend medical men to tumble into such a heaven. What will happen to the country when a moiety of the adult population will be Government officials supported with their wives and families by the other half, who will also have to bear the expenses of the war?

If this nation is to progress we must raise up a race of stalwarts, the highest and best forms of individualism must be encouraged in every walk of life. The vaunted rise in the expectancy of life is more largely due to the much decried fall in the birth-rate than to Sir George Newman and his satellites. A man's life should be measured by his work and efficiency rather than by years. Under Sir George Newman's scheme it is possible that there might still be a small rise in the expectancy of life, but the probabilities are strongly the other way. With an increase in a degenerate population, which is being encouraged, the death-rate is certain to rise, just as is happening in the present day in cases of tuberculosis. So much for the boasted conquest of consumption. Nature is not going to be entirely thwarted by an inept and expensive art. Many of our most valuable citizens owe their continued existence and efficiency more to their parents than to the medical profession.

When I heard Mr. Justice Bailhache sympathizing about an old criminal who had spent over fifty years of his existence in prison, I told him that a life of crime was not necessarily a short one, and if this man had been honest and hard working he would probably have been dead long ago. Every one might be reasonably expected to furnish some evidence in support of his continued existence. Under such a system a large number of Government officials would succumb. When will it be possible to instil a little common sense into our Legislature? We want a large infusion of the colonial spirit much more than the university spirit. We want a real manhood, leaders of men and not decrepit teachers, either in universities or elsewhere, who cannot take a broad and healthy outlook in life.

Sir George Newman's proposals may amount to a health-giving scheme if health simply consists in curing disease and in the prevention of grave mischief among the degenerate. A truly healthy race would not require his placebos. We have to a large extent abolished a selective death-rate—Nature's method of improving the race—but we seem as far off as ever from establishing a selective birth-rate, and there is no encouragement from Sir George Newman to do so. It is true that he mentions the word eugenics in two or three places, but apparently merely to show that nothing has been omitted in his comprehensive scheme. Personally, I cannot see that any betterment to the British race is ever likely to accrue from a scheme which neglects the very fundamentals of health, and is soaked in Lamarckian doctrines from beginning to end.

He is very conciliatory, especially to general practitioners, without whom his scheme will not work. He has many soft platitudes, and is often even laudatory in his remarks, but it is to be hoped that in vain is the net spread in the sight of any bird. Soft words butter no parsnips, and the medical profession will be very stupid if caught in such a trap, alluring though it be.

Many times during the last twelve years I have said that there is not a medical school in the kingdom where preventive medicine is taught as it should be taught, so I am quite ready to agree with Sir George Newman that there is room for improvement, though we may differ materially as to how the improvement should be effected. At the same time I am not blind to the great evolution which has taken and is taking place. I believe in evolution, not in revolution, and I am inclined to think that the medical schools will work out their own salvation if left alone. He is very strong on what he calls the university standard of work, yet I daresay he would allow that all the work of the ancient philosophers, some of whom he mentions, was up to the university standard. The staff of a university is not necessarily a homogeneous body; it is rarely endowed with worldly wisdom, and only acts simultaneously when emoluments are in danger. The attractions are not sufficiently powerful to make an intellectual giant remain on the permanent teaching staff unless he be relieved of the drudgery of teaching; no doubt some do so remain from the love of a life of comparative ease and pleasure, and others from the lack of means or power of adaptation to a more useful, even if more strenuous, mode of existence.

He is also very strong on research work, which is no doubt an excellent mode of training the student, but there is not one student in a hundred capable of independent research. The public should not be troubled with records of research work unless their accuracy and value are vouched for by the professor. No great work has been accomplished by any man whose time has been largely occupied in teaching students. Kelvin did not waste much time over his class: he was soaring and dreaming above them. I am strongly in favour of research work of all kinds when the students are taught and know their limitations. The advice of Prior, "Let him be kept from paper, pen, and ink so that he may cease to write and learn to think," is applicable to a great deal of the education in the present day. I can warmly recommend to teachers of all kinds the admirable work of J. G. Legge, Director of Education in the city of Liverpool, on *The Thinking Hand*.

I would ask any intelligent being to study Sir George Newman's pamphlet carefully, see what is required of the medical student, recognize the fact, acknowledged by Sir George Newman, that when the student is newly fledged with his degree he is, to a large extent, only in a position to begin to learn his life work, and then take a dispassionate survey of his prospects under the National Insurance Act, and other proposed extensions in the same direction, and finally answer the question, Could you honestly recommend any intellectual young man to enter the medical profession? As I said before, the public will just get the kind of medical men which they merit, no better and no worse.

Twenty years or more ago I tried to induce a prominent member of the House of Commons to take up the question of physical training in elementary schools, but I was met at once by a *non possumus*. It cannot be done, we want another generation of teachers; and he advised me, if I doubted his opinion, to attend the next conference of school teachers. So with medical education; while Sir George Newman is training his new team let us get on with the war, and, when that is finished, if we are not content with evolution by all means let us have a revolution, and a deadly war against all effete government departments—their name is legion. I now say to general practitioners: Perfect your own education, you have the means at hand; teach your patients the laws of health, which is the most valuable asset of the nation. In my presidential address in 1912 I said:

> In my opinion the future of medicine will rest with enlightened and highly educated general practitioners—men who will look after the health of the community, who will see that mechanism of a high order is produced, and who will see that the machinery of the individual is properly lubricated, and not subjected to any unnecessary friction or strain. The enlightened public will look to their medical attendants as guides, philosophers, and friends both in health and disease.

The Insurance Act was not then in operation.

Medical men should become health specialists, the field is not at present overrun. I do not place medical officers of health in this category; their work consists largely in the preservation of the unfit. I am well aware that the public generally only pay for the treatment of disease, and not for the preservation of health, but still I think the more intelligent could be easily tuned up to concert pitch. You would have to let the public know that the work cannot be done on the tariff of the National Insurance Act. I had a visit the other day from a gentleman who travelled fifty miles, and spent the night in Liverpool, to tell me that he did not think there was much the matter with him, but he wished my opinion. I agreed with him, but, like myself, I thought he was taking too much out of the machinery. He asked me how he could help it, when his firm, of which he is the senior partner, are extending their factory to the tune of three-quarters of a million for work of very great national importance, otherwise they would not be allowed to spend the money. Under normal conditions he might be inclined to cut the painter, but it is difficult to be sure, as circumstances alter cases, and the love of work is a powerful factor in man's destiny.

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EARLY TREATMENT OF MENTAL DISORDER.

In the report of which we give some account elsewhere Dr. Easterbrook makes a strong plea for the extension of the system of voluntary boarders in asylums, and sets out certain statistics which he holds demonstrate the therapeutic advantages of this mode of admission. He ascribes the favourable results he records to the fact that the system permits of early treatment. All are agreed on the necessity for the treatment of mental disorders in their very earliest stages, but before we accept Dr. Easterbrook's evidence as conclusive it is necessary to consider one or two points. In the first place, it must be realized that the mode of admission by the voluntary choice of the patient may in itself exercise a selective action on the nature of the cases, so that the comparison may not be between two strictly similar groups; it is possible that the greater recovery rate in the voluntary groups is in part at least due to such difference. Further, it is only right to bear in mind that this observation is not confirmed by experience in some other institutions. It has been said, for example, by some that the voluntary boarder is often in a state of anxiety lest after all certification should become necessary, or he may be troubled with doubt as to whether he should take advantage of his right to leave; neither of these conditions, it is held, are conducive to peace of mind and early recovery, whereas the patient who was certified on admission is free from these unsettled and unsettling questions. As all voluntary boarders are taken from the private patient class it would be interesting to know whether that class as a whole shows a greater recovery rate than the rate-aided class as a whole. If this should prove to be the case, the objection taken above would not apply. Though no doubt other factors come in which would render it difficult to draw any positive conclusion, the comparison might be expected to show the effect, if any, of the greater opportunity given to the private class over the rate-aided class for early treatment by reason of the option for admission as a voluntary boarder possessed by the one class but denied to the other.

In addition to the voluntary method of admission Dr. Easterbrook advocates as a means to ensuring early treatment in mental affections, for the purpose of conserving the fitness of the individual as an efficient unit in the social scheme, the hospitalization of our asylums on the lines of general hospitals and convalescent homes. Whether such modifications could be expected to produce such a change in the attitude of the public towards the asylum as to bring a really large proportion of the quite early cases of mental disorder to seek help under the voluntary system, even when extended to all classes, appears to be doubtful. The bulk of the asylum population must belong to the more chronic types of insanity, and altogether apart from the objection to certification, the ideas consequently associated with the asylum will deter people from going to it readily for treatment in the very early stages of their ailment. Something more than the hospitalization of asylums and the extension of the system of voluntary boarders would seem to be necessary if the patients are to be brought under treatment soon enough to afford hope of preventing a real breakdown.

To meet this need opinion is steadily crystallizing into a demand for some separate place for both in- and out-patient treatment, free from the harshness of certification and the unfairness of invoking the Poor Law machinery, and corresponding as far as may be with the hospitals for physical diseases. Such hospitals or clinics would be differentiated in principle and also in regard to the type of case received if they were kept free from any formal powers of detention, the cases for whose care powers of detention proved to be necessary being transferred for treatment from it to the asylum. If this principle were followed out there would be no need, at all events as far as public clinics were concerned, for the supervision of the lunacy authorities or of any notification to them. In practice no great difficulty arises in the ordinary hospitals at present in dealing with delirious cases and cases temporarily excitable or lacking in self-control, and within the limits of convenience no difficulty need occur here.

The equipment of the clinics should be such as to provide the most varied and modern appliances for treatment. If some form of inspection were thought necessary, this could be made one of the duties of the promised Ministry of Health, and need not be controlled by the department dealing with the question of detention. If the public is to be brought to see the value of the earliest possible treatment and to avail itself of it, it must be by making this easy and attractive.

It might be possible with advantage to extend the system of voluntary submission to treatment to the proposed clinics, but it is important to avoid taking any step which would alter the character of the clinic so that it came to cover the same ground and perform the same function as the asylum. It is sought to set up a new type of institution in a distinct building, because it is held that while there is a class of cases for whom the asylum with the systems of voluntary and certificated patients is best, there is another large class, many of whom are at present not treated at all and require different and separate arrangements. So far as the well-to-do classes are concerned, they already insist on some such separation of function, often at the risk of offending against the law, and it seems only fair that provision adapted to their requirements should be possible within the law. As the question of private profit comes in, some further safeguards are necessary beyond those required in clinics maintained by a public body. Yet it is just as important to avoid certification in these cases also if efficient treatment is to be taken in hand early.

Section 315 of the Lunacy Act, 1890, imposes a penalty on persons receiving for profit patients of unsound mind except under a judicial order and medical certificates. It appears probable that the need indicated could be met most readily and satisfactorily by giving legal powers to the Board of Control to withdraw from the operation of that section such homes for the reception of more than one patient as it may specially recognize as suitable and suitably conducted, and such single patients as it may consider ought to be so placed without certificates. For this purpose it would only be necessary that the fact of the reception of a patient under such conditions should be intimated to the Board, when it would be at liberty to satisfy itself as to the propriety of the case being so received. It is believed that

such a procedure would be welcomed by the Board and relieve it of much difficulty in the administration of the Act; at the same time, if these proposals were given a sympathetic interpretation by the Board there would be no longer any temptation to evade the provisions of the law. A precedent for such a relaxation of the requirements for certification is to be found in the Mental Deficiency Act, 1913, which allows patients to be received in approved homes without certification, and consequently without powers of detention.

THE ANTI-ANAPHYLACTIC TREATMENT OF INFECTIONS.

In a series of articles, some of which have been collected into book form,[1] Dr. J. Danysz of the Pasteur Institute applies the conception of anaphylaxis to the phenomena of disease on much broader lines than has generally been adopted, and from these views deduces directions for logical treatment. The complicated physico-chemical problems of immunity and anaphylaxis are presented in an attractive light, and from the practical standpoint the subject is simplified by the conclusion that, whatever the original theories, the real explanation of the successes obtained by the various methods of treatment known as vaccine, proteose, lympho-sero and protein shock therapy, and by tachyphylaxis, is that a process of anti-anaphylaxis is being instituted, a method employed by Professor Besredka to obviate anaphylaxis from therapeutic injection of serum in patients previously thus rendered hypersensitive.

On the basis of the results of the reactions between antigens (exotoxins or the products of bacteriolysis) and antibodies, Danysz divides the infective diseases into two groups. The first is a small one, containing diphtheria, tetanus, botulism and a few more, in which the exotoxins act rapidly and directly on the tissues and thus cause characteristic symptoms, and in which the exotoxins are later neutralized by antibodies in excess, with the formation of soluble antitoxin and without any resulting anaphylaxis. These diseases are rightly treated by injections of antitoxic serums. The second and larger group contains nearly all the septicaemias, tuberculosis, influenza, enteric, trypanosomiasis, malaria, syphilis and others, in which the antigen combines with the normal antibody during the relatively long incubation period. Subsequently, when antibody is present in excess and an insoluble compound is formed with the antigen, a state of anaphylaxis results. This may be latent until a suitable excitant, which may be the original antigen, calls out active anaphylactic symptoms. The excitant, however, need not be specific; thus an animal or man with an excess of antituberculin is hypersensitive to such various agents as changes of temperature, fatigue, mallein, and the toxin of the pneumobacillus as well as to tuberculin.

Danysz describes the mechanism in enteric fever as follows: During the period of incubation the antigen, provided by the products of bacteriolysis, unites with the normal antibody; but later, when the antibody is present in excess and combined with the antigen, symptoms appear as the manifestations of a series of successive anaphylactic crises. It may here be mentioned that in a rather different connexion Friedberger and Zinsser have pointed out the similarity of the clinical manifestations of several diseases in which the causal bacteria are biologically different; for example, in pneumonia due to the pneumococcus and the pneumobacillus, and in the various forms of acute and subacute septicaemia in which a definite bacteriological diagnosis can rarely be made except by a blood culture. In diseases with an excess of antibody and chronic anaphylaxis the injection of serum containing more of the specific antibody cannot be expected to exert any curative effect, and Danysz mentions tuberculosis, plague, enteric, and streptococcic septicaemias as conditions in which antiserums have not at present given any appreciable result. Jousset,[2] it may be interpolated, has recently written an article on "treatment by large doses of serum and the myth of anaphylaxis," based on ten years' experience in the use of antituberculous serum, and this will show how much difference of opinion there is likely to be on these new and rather bewildering views. Danysz explains the success of specific serums in some septicaemic states, such as pneumonia, cerebro-spinal fever, and anthrax, either on the ground that a poison secreted by the bacteria is neutralized or that the proteins in the serum exert a non-specific effect; the latter explanation does not appear valid in the case of pneumococcic infection, since an antipneumococcic serum against pneumococcus type I is only effective against infections with type I, and antipneumococcic serums against types II, III, and IV have as yet proved useless, as was pointed out in an article on the serum treatment of pneumonia in the JOURNAL of January 12th, 1918 (p. 58).

The anti-anaphylactic treatment advocated by Danysz includes chemiotherapy, or the injection of salvarsan and his luargol, and the use of vaccines, which are best given intravenously and can only be administered orally with any hope of success when the alimentary canal is incapacitated from transforming the microbic proteins into amino acids which would have no anti-anaphylactic action. In a recent paper on the anti-anaphylactic treatment of gastro-intestinal, cutaneous, asthmatic, and other disorders,[3] he concludes that in the great majority of the cases the condition of latent hypersensitiveness is due to antigens formed in or derived from the alimentary canal, and because of some lesion of the intestinal mucous membrane able to pass unaltered into the circulation and to the tissues. The intestinal flora will therefore often prove to be the agents requisite for the anti-anaphylactic treatment of these disorders. In support of this, he instances a number of cures of asthma, psoriasis and other cutaneous diseases, as well as intestinal disorders, effected by subcutaneous injections of vaccines derived from the bacteria of the patient's faeces. It will be interesting to see how far the conception of anti-anaphylactic treatment, attractive from its ingenuity and comparative simplicity, stands the test of further research in the problems of immunity.

[1] *Principes de l'évolution des maladies infectieuses.* J. B. Baillière et Fils, Paris, 1918.

[2] *Presse méd.*, Paris, 1918, 401.

[3] Ibid., Paris, 1918, 367.

MEDICAL MAN-POWER IN THE UNITED STATES.

IT is interesting to watch the way in which the problem of medical man power is gradually getting into the foreground of American medical politics. We learn from the *Journal of the American Medical Association* that more than 25,000 medical men have now accepted commissions in the Medical Department of the United States Army, and at least 2,000 more are in process of being commissioned. Adding to this number the surgeons in the U.S. Navy, it is estimated that more than 29,000 medical men have volunteered, and are now either on active service or subject to immediate orders. The 5,000 volunteers whom the

Surgeon-General asked for last May[1] have been obtained; 5,000 more are now to be called for; and it is probable that yet another 5,000 will be needed before very long. According to current belief the present plan is to raise an army of five million men as soon as possible, and these would require between 35,000 and 40,000 medical officers. Our contemporary does not doubt that the medical profession of the United States, with its proverbial patriotism and unselfishness, would supply the number needed, but holds that the voluntary method of furnishing the army with medical officers is unfair and unsatisfactory: "the democratic method—the correct method—to raise an army is compulsory selective service." While a compulsory draft of medical men alone would be against the spirit of the constitution of the United States, "a compulsory selective service of all men, which would include physicians, is ideal." The proposal now before Congress to raise the draft age to 45, would affect some 75,000 medical men. It might be possible to frame regulations agreeable to the Surgeon-General of the U.S. Army and the Provost-Marshal General which would in effect place all medical men under 45 at the disposal of the Surgeon-General; and the *Journal of the American Medical Association* records its opinion that this plan would make easy the solution of the problem of securing the required number of medical officers for the forces without seriously interfering with the needs of the civilian population. We observe further that, in accordance with a plan announced on August 13th by Dr. Franklin Martin, Chairman of the General Medical Board of Council of National Defence, the medical men and women of the United States are to be mobilized by the Volunteer Medical Service Corps. The plan provides for the enrolment of every qualified doctor, man or woman, without regard to age or physical disability, not already in the service of the Government. In a letter to Dr. Martin approving the reorganization of the corps, President Wilson says that its usefulness will be increased thereby: "The important work of the Provost-Marshal General's office and the Red Cross will be aided and the problems of the health of the civilian communities of the United States assured consideration." The President goes on to say that he is happy to have the opportunity of expressing to the medical profession his "deep appreciation of the splendid service which the whole profession has rendered to the nation with great enthusiasm from the beginning of the present emergency. The health of the army and the navy, the health of the country at large, is due to the co-operation which the public authorities have had from the medical profession; the spirit of sacrifice and service has been everywhere present, and the record of the mobilization of the many forces of this great republic will contain no case of readier response or better service than that which the physicians have rendered." This is an official recognition of which our American brethren have every reason to be proud.

[1] BRITISH MEDICAL JOURNAL, May 18th, 1918, p. 569; and June 1st, p. 625.

SOCIAL STUDY AND TRAINING AT THE UNIVERSITIES.

THE multiplication of agencies for social improvement is of necessity attended by a great deal of confusion and overlapping. In times past the annual meetings of the Social Science Congress afforded the only means of discussion of the many problems involved, and the practical outcome of such discussions did but little to co-ordinate them. In July, 1917, the Home Office called a conference to consider the training of welfare supervisors, and this in its turn led to the formation of a Joint University Council for Social Studies, a body representative of the universities of England, Scotland, and Wales, by whom an interesting report has recently been issued, setting forth the considered opinions of experts as to the need for social study and training, and indicating the lines upon which such study should be conducted. Briefly, the scheme embraces systematic instruction by means of lectures, and practical demonstrations of the working of social organizations by visitation and personal experience. With the expressed aim of "educating the citizen's understanding of the social life of which he is a part, and furnishing him with a background of fact and ideal which shall throw light on all his practice as an administrator," the course of study must needs be comprehensive. Although one year's training is suggested, it is probable that a much longer course of instruction would be found necessary. It is not suggested that the training should be limited to members of universities, but that the facilities for teaching, the status of the teachers and the educative influence of university life, render them especially convenient as centres for social training. The need for such education is only too well known. For lack of it a very great amount of well-meant endeavour is thrown away. The enthusiastic curates, the so-called social workers, the health visitors and the amateur managers of philanthropic institutions are all handicapped in their efforts by the want of knowledge of the principles of social science and of the results of their misapplication. A very large proportion of the persons who at the present time are engaged in social work have not received any sort of training to qualify them as advisers. Their services are accepted without any guarantee as to their relative value. In their report the Council foreshadow the possibility of graduation in social subjects in the future, and the time is certainly approaching when some form of classification will become necessary. The wide scope of the scheme, the difficulties that stand in the way of immediate advance, and the results that may possibly be achieved are well set forth in the *Report*.[1] They may be commended to the special notice of municipalities, voluntary associations, and all citizens interested in social well-being.

[1] To be obtained of P. S. King and Son, Ltd., Orchard House, Westminster. Price 6d., postage ½d.

VISITS TO FOREIGN HEALTH RESORTS.

THE autumn season, which is upon us, is a reminder of the near approach of winter, and makes it expedient to repeat information with regard to visits to foreign health resorts published six months ago. The Military Permit Office was instructed some time ago to reduce all cross-channel traffic to the lowest limits consistent with the national interest and the avoidance of unnecessary hardship to individuals. The force of the reasons for this instruction has rather increased than diminished in the interval, and permits are strictly limited to cases in which the absolute necessity of the journey can be satisfactorily established. Before any application which is made on the ground of ill health is considered the applicant is required to produce a doctor's certificate stating that the journey is an absolute necessity, specifying the place to which the journey is to be made, and the length of stay there, and certifying that there is no health resort in Great Britain which would meet the case; when the application includes a request for a companion the medical man must include in his certificate the statement that a companion is essential, and the name of the companion. These regulations do not apply to persons seeking permission to visit a wounded relative but to persons who consider that it would be to the advantage of their health to visit some place on the Continent, most usually the Riviera. We have been asked again to bring the regulations of the Military Permit Office to the notice of members of the medical profession and to invite them to exercise the utmost discrimination in giving certificates. The essential points seem to be that the doctor must certify that the journey is an absolute necessity, and that there is no health resort in Great Britain which would meet the case.

PUBLIC HEALTH SERVICES IN ENGLAND.

DR. ARTHUR SHADWELL, in a letter to the *Times* of September 18th, under the heading, English Public Health: A Comparison with other Countries, enters a protest against the Prime Minister's recent snub to the Public Health Service of this country. Speaking at Manchester on September 12th, Mr. Lloyd George is reported to have said: "There ought to be a more intelligent organization of the forces which have special charge of the health of the nation—national, municipal, and medical. In this respect I doubt if there is a first-rate country in the world where less has been done." In reply to this imputation, though without questioning the need and the possibility of improvement, Dr. Shadwell asserts in the most positive terms that there is no country in the world where so much has been done as in England. As the result of personal investigations into outbreaks of epidemics or into industrial and social conditions in practically all the large towns of the United Kingdom, and many small ones, in colliery villages and in rural districts, and of first-hand study of comparable areas in the United States, Canada, France, Germany, and Belgium, and of single towns in various other countries, he declares that, taking the general level of attainment all round, and comparing like with like, the English standard is still measurably above that of other countries, and very far above that of most of them. "England is the great pioneer in public health and sanitation; all the cardinal discoveries and measures originated here, and for a long time England stood alone in their application. Other countries have been coming up with all the advantages of maturer knowledge and a virgin field, and have here and there surpassed us; but to-day the public health system and service in England are still the most complete and efficient in the world." Dr. Shadwell concludes by begging the Prime Minister not to be misled by ill-informed and over-ardent advisers. "He has been led before by similar counsellors and his own sanguine temperament into exaggerated expectations and impossible promises in regard to national health, and I see signs of a recurrence." There is probably need for some such public appreciation of English preventive medicine, and for some such warning; but the writer, as a medical man, should perhaps have made a little allowance for the fact that Mr. Lloyd George's latest speech was delivered under the disadvantage occasioned by the onset of an acute febrile attack.

A GERMAN PROFESSOR ON MILITARISM.

THE *Cologne Gazette* complained not long ago that the rest of the world now looked upon Germans as a nation of blackguards. They have certainly done, and are still doing, their utmost to deserve this character, and the most damning proof of their shame is found in the fact that it is admitted by some of the best among themselves. One of the severest indictments of Kultur is brought by Dr. Georg Friedrich Nicolai, till lately professor of physiology in the University of Berlin, and a specialist in heart disease who has been consulted by the Kaiserin. In a book entitled "The Biology of War: Reflections of a German Naturalist," published in Switzerland about a year ago, he denounces Prussian militarism and all its works and pomps. An account of the book was given by Mr. William Archer in the *Westminster Gazette* of December 17th, 1917, but it is still little known in England though it has received considerable notice in the American press. So crushing was this exposure of German ambitions and the methods of securing their fulfilment felt by the German Government to be, that even before the book was in print the author was imprisoned and deprived of his office and income. This summer he escaped from Germany by aeroplane, and on June 22nd, 1918, it was announced that he had landed in Denmark. His adventure was made the subject of inquiry by the Copenhagen police, and it is significant that he has not in the ordinary way been interned till the end of the war. His book, which has been described by George Brandes as a most important document on the nature and justification of war, is fully analysed by Sir Theodore Cook, who has seen the only copy of the original which was in England this spring, in an article, entitled "A Voice in the Wilderness," which appeared in the *Nineteenth Century and After* (August). Nicolai's conscience compelled him to liberate his soul, though he clearly realized what the consequences would be, and he has paid the penalty in loss of money, friends, prestige, and position. The leading principle in his teaching is contained in the following sentence: "If there is anything certain in this world, it is the fact that to-day a nation can be victorious only if it concentrates all its strength on the peaceful rivalries of life, and with that object endeavours to give peace to the world." He says the idea of issuing his protest against what he felt to be the degradation of his country came to him when the disgraceful manifesto of the ninety-three intellectuals, issued in 1914, revealed to a horrified world to what a degree the fury of war had drowned the voice of reason and justice in Germany. A counter-manifesto which he tried to send forth, calling on the representatives of science and art to uphold amid the clash of arms the sacred traditions of European civilization, fell on deaf ears, and scarcely any signatures were forthcoming. He therefore announced for the summer semester of 1915 a course of lectures on war as a biological factor in the development of humanity. But, as his opinions were known, the Government took steps to close his mouth. He was called up for military service and appointed to the garrison fortress of Gauderenz. Determined not to be silenced, he embodied the substance of his views in the book to which we here call attention. Messrs. Dent hope to issue an English translation this autumn.

PURE AND APPLIED MEDICAL SCIENCE.

THE late Sir Lauder Brunton afforded an example of the combination of the laboratory worker and the practising physician, two complementary spheres of activity now rendered increasingly difficult by the growing specialization of both. In Dr. Garrison's words, "he practised medicine as a science, interpreting symptoms as altered physiology rather than as consequences of the end results of altered structure," and in his early days he thus acted on a conception which, though no doubt realized, was not so much a guiding principle as it is now. His articles were often in advance of their time. Thus a paper published in 1884, and republished in the posthumous volume[1] noticed in the JOURNAL at the time of its appearance (December 2nd, 1916), dealt with the alterations in the action of digitalis produced by febrile temperature. It referred especially to pneumonia, and is still of interest, as shown by Cohn and Jamieson's recent investigation of the subject by the electrocardiograph; their conclusion is that digitalis acts on the heart in pneumonia in the same way as it does on the normal heart. This application of physiology to bedside work is especially shown by the long list of papers on the arterial blood pressure, a subject he first investigated by laboratory methods in 1867 when its application to ordinary practice must have seemed remote indeed. This illustrates the bearing of pure on applied medical science, and proves the value of successful research, even though at the time the practical man sees no use in it, not imagining that what is of theoretical interest to-day may to-morrow be the basis of accurate diagnosis and treatment. Together with Sir Clifford Allbutt and Dr. C. J. Martin, Sir Lauder Brunton may be regarded as largely responsible for the introduction of the estimation of blood pressure into ordinary practice. His position

[1] *Collected Papers on Circulation and Respiration* Second series, clinical and experimental. By Sir T. Lauder Brunton, M.D., D.Sc., LL.D., F.R.C.P., F.R.S. London: Macmillan and Co. 1916. (Pp. 719; figs. 256. 5s. net.)

as a physiologist on the one hand, and a consulting physician on the other, together with his imaginative and practical mind, enabled him to put the lessons of the laboratory to the test in medicine; in this way he had much success in the treatment of disordered function. His famous "temper powder" of twenty grains of potassium bicarbonate and ten or twenty grains of potassium bromide, is described in a paper on the relief of the irritable temper of cardiac disease and gout, in which attention is also drawn to the beneficial action of sodium salicylate and potassium bromide in headache, and also in the irritability of heart disease.

THE TRUDEAU SANATORIUM AND RESEARCH LABORATORY.

THE best memorial that can be raised to commemorate the life work of a pioneer should have for its object the steady pursuit of his original aim. The name of Dr. E. L. Trudeau is probably known only to a comparatively small circle in this country, but in America his work as an original investigator of the problems of tuberculosis and his persistent efforts to spread knowledge of the disease and its treatment have had far-reaching effects. The sanatorium in the Adirondacks, which he founded more than thirty years ago, has been supplemented by a foundation, also bearing his name, for research and teaching in tuberculosis, and the results of the research work carried on under its auspices are steadily accumulating. The thirty-third annual report from the sanatorium itself contains an analytical record of all cases treated during the year ending in October, 1917, by which it appears that a slow but steady improvement is taking place in the percentage of ultimate success in treatment. Many interesting points have been specially reported upon, such as the effect of typhoid fever and vaccination upon pulmonary tuberculosis, the value of pulmonary rest, and the use of calcium lactate. Tuberculin does not appear to have been employed in many cases. Appended to the report are four papers dealing with serological studies, prognosis in relation to haemoptysis and the presence of bacilli in sputum, the reaction of the pleura to inoculation, and with experimental tuberculosis of the liver. All these have already been published in the *American Journal of Tuberculosis*. They are mainly of scientific interest and cannot be said to give much assistance from the practical point of view, but they serve to confirm opinions already formed on less precise data. The intimate association of the research laboratory with the sanatorium is a most desirable incitement to future study. The problems of tuberculosis are very far from being solved, and it is only by the close association of clinical observation with laboratory experiment that real advance of knowledge can be looked for.

AN EIGHTEENTH CENTURY QUACK.

WILLIAM HICKEY, whose memoirs, published in 1913, read like a Spanish picaresque novel, was the son of the legal adviser of Joshua Reynolds and Edmund Burke, and a member of the group who figure in Goldsmith's *Retaliation*. The father is described as "a most blunt pleasant creature"; the son was an irredeemable scamp, but his book gives an animated picture of eighteenth century life. Among the various characters who flit across his stage is a notable quack of whom he tells the following edifying story. Admiral Forrest, the hero of many sea fights, was a martyr to gout. In 1770 he suffered so grievously that in despair he sought relief from Sir James Jay, who is described as a quack doctor in great practice as a curer of gout. One of his conditions was "No cure, no pay." If successful he demanded a fee of five hundred pounds, and this sum the Admiral, who believed himself to have been delivered from his enemy by the knight's treatment, thankfully paid. Soon afterwards he sailed for the West Indies. About the same time another patient whom Jay pronounced to be cured declined to pay on the ground that he was still subject to acute attacks. Sir James, like Lord Foppington's bootmaker, who would not accept his client's judgement as to the fit of his boots, refused to admit his patient's evidence as proof of his failure, and carried the case into the Court of King's Bench. At the trial the plaintiff subpoenaed a number of persons of high social standing, who testified to the fact that they had been cured by his treatment, and had paid the fee. Among these witnesses was Mrs. Forrest. She deposed that her husband, who, before putting himself under the care of Jay, had every twelve months had two violent attacks of gout which confined him to his room for several weeks, had had no return of the disorder for eight months after undergoing the treatment. Mainly on her evidence Jay secured a verdict in his favour. It turned out that at the very time Mrs. Forrest gave this evidence her husband lay dead in Jamaica from an attack of gout in the stomach! This is a striking illustration of the worthlessness of inexpert testimony.

PREVENTION OF SIMPLE GOITRE.

HAVING in a previous paper given a review of the experimental work on which the statement is based that simple goitre is probably the easiest of all known diseases to prevent, Kimball and Marine[1] now record the results of treatment of school girls at Akron (Ohio) by sodium iodide in doses of 2 to 4 grains daily until 30 or 60 grains, according to the age, have been taken, twice a year, in May and November. In April, 1917, 3,872 girls were examined and the condition of the thyroid tabulated. In the following November examination showed that not a single pupil in whom the thyroid was previously normal and who had taken the iodide, showed any enlargement, whereas among controls who had not chosen to take the remedy 26 per cent. had definite enlargement of the thyroid, some being moderately large goitres. Further, a curative influence was shown, for one-third of the small goitres disappeared and a diminution of 2 cm. or more was noted in those with moderate goitres. Among more than a thousand girls who took the treatment five only had a rash, which was slight and gave no trouble, and in no instance was there any sign of exophthalmic goitre.

THE DETERMINATION OF SEX.

AT a maternity hospital in Freiburg, Dr. Siegel has taken advantage of war conditions to investigate the relation of menstruation to sex. He obtained from his patients the dates on which their husbands arrived on furlough, the dates on which they departed again, and the relation of these dates to the menstrual cycle. His successive publications have been analysed by Dr. Ada Nilsson[2] in a paper read before the Swedish Medical Society. It appears that Siegel allots the first nine days of the twenty-eight to male conceptions. That is to say, coitus from the first day of menstruation and for the following eight days will yield 86 per cent. of males and only 14 per cent. of females. From the ninth to the fifteenth day coitus will result in 35 per cent. of males, and 65 per cent. of females. From the fifteenth to the twenty-second day the result will be 85 per cent. of females and only 15 per cent. of males, and from the twenty-second to the twenty-eighth day the woman is practically sterile. In his first paper Siegel maintained that these last six days of the menstrual cycle were absolutely sterile, but he has subsequently admitted that conception, chiefly male, is feasible in the premenstrual period. The optimum period for conception is, he finds, the seventh and eighth days after the beginning of menstruation. The fall in fertility is gradual from the eighth to the fifteenth day, but from the fifteenth to the twenty-second day it is more abrupt. It appears that two other investigators, Pryhl and Jaeger, working independently, have confirmed Siegel's observations.

[1] O. P. Kimball and D. Marine, *Arch. Int. Med.*, Chicago, 1918, xxii, 41-44.
[2] *Svenska Läkaresällskapets Förhandlingar*, December 31st, 1917.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died of Wounds.

SURGEON A. R. MACMULLEN, D.S.C., R.N.

Surgeon Alfred Robinson MacMullen, D.S.C., R.N., attached Royal Naval Division, died of wounds on September 7th. He was the third son of the late W. F. MacMullen of Rockcliffe, Cork, and was educated at Cambridge and at the London Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1913. He joined the navy as a temporary surgeon on August 5th, 1914, the day after war was declared, and received the Distinguished Service Cross on February 24th, 1916.

Wounded.

Staff Surgeon W. J. McCracken, D.S.O., M.C., R.N.
Surgeon J. V. Dobson, R.N. (temporary).
Surgeon R. K. Shaw, R.N. (temporary).

ARMY.

Killed in Action.

LIEUT.-COLONEL H. H. MOSHIER, C.A.M.C.

Lieut.-Colonel Heber Havelock Moshier, C.A.M.C., who was killed in action on August 29th, aged 29, was the son of Mr. D. D. and Mrs. Moshier of Toronto. After graduating with distinction in medicine at the University of Toronto, at the age of 20, he undertook research in pathology at the Rockefeller Institute, New York, and, later, crossing to England, worked with Professor Halliburton in the physiological laboratories at King's College, London. Returning to Canada he had scarcely established himself at Calgary as a consultant pathologist, when he was called to the University of Alberta at Edmonton to the recently established chair of physiology. He threw himself into the work of the university with characteristic thoroughness and energy, and in three years had shown himself a source of great strength to the faculty. While at first it seemed to him that his duty lay with a young university, as the war progressed he realized that his country had the greater call upon him, and when, early in 1916, a field ambulance was raised in Alberta, he joined it. So good a name had he made for himself as a leader, that, despite his youth, he was given his majority and placed second in command. That August he crossed to France with the unit, and went through the actions of Courcelette, Vimy Ridge, and Passchendaele. When, in September, 1917, his senior officer was called to England to take over work there, he was given command of the unit, and later promoted lieutenant-colonel. In this position he rapidly gained the respect and affection of all under him. In May last he was mentioned in dispatches, and he met his death during the recent operations while proceeding forward to locate an advanced dressing station. He had already accomplished much, and with him Canada loses a man of singular promise. He leaves a widow, now in England.

CAPTAIN W. M. LANSDALE, R.A.M.C.(S.R.).

Captain William Morris Lansdale, R.A.M.C.(S.R.), attached Berkshire Regiment, was reported as killed in action, in the casualty list published on September 11th. He was educated at Guy's Hospital, took the L.M.S.S.A. in 1914, and the M.B. and B.S.Lond. in the same year; he took a commission as lieutenant in the Special Reserve of the R.A.M.C. on December 16th, 1914, and was promoted to captain on June 16th, 1915.

CAPTAIN A. MORTON, R.A.M.C.

Captain Alick Morton, R.A.M.C., was killed in action in France on August 27th, aged 24. He was the elder son of Dr. R. A. Morton of Ayr, and was educated at Ayr Academy and at Glasgow University, where he graduated as M.B. and B.Ch. in 1916. During his final year he acted as one of the resident assistants at Springburn Red Cross Hospital, Glasgow. After qualifying, he took a temporary commission in the R.A.M.C., and had served for about a year in Burma, and another year in Palestine, before he was transferred last spring to France, where he was attached to the Highland Light Infantry. He was killed by a shell while dressing wounded in a shell hole.

Died of Wounds.

Captain R. B. Taylor, M.C., R.A.M.C., was reported as having died of wounds, in the casualty list published on September 7th. He received the Military Cross on July 26th, 1918.

Captain Graham Robertson Cowie, South African Medical Corps, died of wounds in a casualty clearing station on September 3rd, aged 27. He was the elder son of John Cowie, late of Johannesburg, and was educated at Oxford, where he graduated M.B. and Ch.B. in 1917.

Lieutenant W. M. Heald, R.A.M.C.(S.R.), died of wounds in hospital abroad on September 8th. He was the only son of the Rev. C. W. Heald, of Chale Rectory, Isle of Wight, and was educated at Marlborough, at St. John's College, Cambridge, and at St. Bartholomew's Hospital, where he acted as junior house-physician before joining the Special Reserve of the R.A.M.C. early this year. He was attached to the Lancashire Fusiliers.

Wounded.

Major G. H. R. Gibson, D.S.O., Canadian A.M.C.
Major W. Murdoch, M.C., R.A.M.C.(S.R.).
Major J. McL. Pinkerton, M.C., R.A.M.C. (temporary).
Captain E. V. Beaumont, R.A.M.C. (temporary).
Captain H. Black, Canadian A.M.C.
Captain L. L. H. Boys, R.A.M.C. (temporary).
Captain J. P. S. Cathcart, Canadian A.M.C.
Captain A. K. Forbes, R.A.M.C. (temporary).
Captain R. K. Gillespie, R.A.M.C. (temporary).
Captain S. E. Holmes, Canadian A.M.C.
Captain A. W. Holthusen, R.A.M.C. (temporary).
Captain A. J. Ireland, R.A.M.C. (temporary).
Captain J. R. John, R.A.M.C. (temporary).
Captain D. F. Riddell, R.A.M.C. (temporary).
Captain H. J. Shone, R.A.M.C. (temporary), Jersey Militia.
Captain E. C. A. Smith, R.A.M.C. (temporary).
Captain T. V. Somerville, M.C., R.A.M.C. (temporary).
Captain W. C. Walsh, Canadian A.M.C.
Lieutenant T. Davies, R.A.M.C. (temporary).
Lieutenant W. P. Nelson, R.A.M.C. (temporary).
Lieutenant M. S. Ullah, I.M.S. (temporary).

Prisoners of War.

Captain C. C. Jones, R.A.M.C.
Captain F. H. McCaughey, R.A.M.C. (temporary).
Captain W. A. Rees, R.A.M.C. (temporary).

Dr. Demetrius Pachantoni, medical officer to the internment hospital for allied prisoners of war at Fribourg, Switzerland, died on August 4th, of pneumonia, following influenza contracted in his attendance on the prisoners.

DEATHS OF SONS OF MEDICAL MEN.

Bryson, W. M., Second Lieutenant West Yorkshire Regiment, third son of Dr. M. Bryson of York, killed September 1st. He was educated at Ellesmere College, Shropshire, and entered the service of the Yorkshire Insurance Company. He had served for five years in the East Riding Yeomanry, got a commission in 1917, and was recently transferred to the West Yorkshire Regiment. His elder brother, Mungo James Bryson, Middlesex Regiment, was killed in action about two years ago. His younger brother, David Buchanan Bryson, died in India of pneumonia on August 6th last, aged 28. He was educated at St. Martin's School, York, and served his apprenticeship in Messrs. T. Cooke and Sons' Buckingham Works. After working as an engineer at Coventry for four years he went to India, where he held the post of overseer on the Matelli Tea Estate, Jalpaiguri, until he joined the army.

Buck, Geoffrey Sebastian, M.C., D.F.C., Captain Royal Air Force, eldest son of Dr. Percy C. Buck, of Harrow-on-the-Hill, killed September 3rd, aged 21. He was educated at Winchester, where he played against Eton in the eleven of 1914. On November 10th, 1914, he got a commission in the 1st City of London (Territorial) Battalion of the City of London Regiment, the Royal Fusiliers, with whom he served in France till July, 1916, when he joined the Royal Flying Corps.

Cassidy, Michael Bernard, Second Lieutenant Irish Guards, youngest son of Joseph L. Cassidy, M.D., late of Harley Street, reported missing April 13th, and now presumed killed on that date, aged 24.

Jones, John Ynys Palfrey, Second Lieutenant Welsh Regiment, only son of Dr. John Jones of Clydach, Swansea Valley, killed August 30th, aged 20. He was educated at the Cathedral School, Llandaff, where he gained a scholarship, and at Blundell's School, Tiverton, where he was a prefect and a member of the eleven. On leaving school in 1916 he tried to join the Royal Flying Corps, but was rejected for deficient sight, and went to Caius College, Cambridge, intending to enter the medical profession. He joined a cadet battalion at Cambridge in January, 1917, got his commission the following April, and went to the front in July, remaining there till invalided last December. He returned to the front on July 27th.

Maggs, Eric William Bristowe, Second Lieutenant King's Royal Rifle Corps, the only son of Mr. and Mrs. W. A. Maggs of Upper Wimpole Street, W., was killed on August 20th, aged 23. He was educated at Charterhouse, and on joining the army in January, 1915, was a student of medicine at University College, Oxford. He served in the H.A.C. for two years, and was twice wounded. Later he passed through a cadet school, and, obtaining a commission in the K.R.R.C., went again to the front early this year.

Mortis, Eric John, Second Lieutenant Royal Guernsey Light Infantry, younger son of Dr. H. E. Mortis of Kinnerley, Oswestry, reported missing April 11th, now presumed killed on that date, aged 19. He was educated at Elizabeth College, Guernsey, where he was captain of cricket and football, got his commission at 18, and went to the front last November.

Mossop, William Nicholson, M.C., Captain and Adjutant West Yorkshire Regiment, third son of the late Dr. Isaac Mossop of Bradford, died of wounds as a prisoner in the German military hospital at Ghent on May 8th. He got his commission on September 10th, 1914.

O'Sullivan, J. G., Lieutenant Royal Engineers, son of the late Dr. T. G. O'Sullivan and brother of Dr. W. J. O'Sullivan, Limerick, killed by enemy aircraft.

Sanders, Reginald Horace, Lieutenant Royal Engineers and Royal Air Force, eldest son of Dr. Horace Sanders, of Hampden Park, Sussex, late of Hampstead, killed recently in a flying accident at Eastbourne, aged 24. He had served abroad for nearly four years in Egypt, Gallipoli, and Palestine, where he was present at the capture of Jerusalem. He returned home and joined the R.A.F. last July.

Torney, T. F. H., Lieutenant Welsh Regiment, only child of Captain Hastings Torney, R.A.M.C., of Cowbridge, Glamorgan, killed September 3rd, aged 20. He got his commission on January 20th, 1915.

Wilson, Thomas, Second Lieutenant Loyal North Lancashire Regiment, only son of the late Dr. Wilson, of Seedley, Salford, killed August 29th, aged 21.

[*We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.*]

HONOURS.

THE *London Gazette* of September 13th announces the following awards to medical officers in recognition of their "conspicuous gallantry and devotion to duty" in the field:

Bar to D.S.O.

Captain (acting Lieut.-Colonel) William Blackwood, D.S.O., R.A.M.C.

He was in charge of the evacuation of casualties from the divisional front during an enemy attack. When communication with the advanced dressing station was cut by enemy barrage he re-established communication and personally visited the posts under his administration. Throughout the fighting he visited the forward area daily, and his indefatigable energy and exceptional organizing ability were invaluable to the division. (D.S.O. gazetted June 3rd, 1918.)

Major (temporary Lieut.-Colonel) Thomas Ernest Harty, D.S.O., R.A.M.C.

For nearly a month this officer was in charge of the evacuation of the wounded on the front of a whole division. His initiative, courage, and resource during much heavy fighting resulted in the successful clearing of all wounded in the forward area, which he frequently visited during heavy shelling to see that his orders were being executed properly, and also to inspire confidence. He never spared himself in his efforts to arrange for the wounded. (D.S.O. gazetted January 1st, 1917.)

D.S.O.

Temporary Captain Ralph Franklin Eminson, R.A.M.C.

When two companies who had made a counter-attack and reached a village, were obliged to fall back 150 yards, suffering heavy casualties, whom it was impossible to rescue owing to the accurate machine-gun and rifle fire from the village, this officer went himself, regardless of fire, and in full view of the enemy, across "No Man's Land" many times, and carried and assisted back the wounded, who would otherwise have been left.

Major James Beverley Metcalfe, M.C., Australian A.M.C.

In a village under heavy bombardment of gas and high explosives, this officer, with practically no protection, tended the wounded for four and a half hours. When the advanced dressing station had been moved to a new site, he remained with four men evacuating odd cases which continued to come in until two shells came right into the dressing room, severely wounding him. His cheerfulness and coolness throughout encouraged all around him.

Temporary Captain (acting Major) Henry Moore, M.C., R.A.M.C.

He went through heavy machine-gun and rifle fire to a dressing station which was being evacuated, and cleared a large number of wounded. He also took cars to battery positions which were being shelled, and removed the wounded to safety. At the dressing stations during enemy bombardment he remained to the last, and saved many lives by his courage and devotion to duty.

Major Leslie Gemmel Tassie, Australian A.M.C.

This officer set a fine example of coolness in going about amongst his stretcher-bearers directing and encouraging them. Day and night he visited the regimental aid post and loading posts, rearranging bearer relays and supervising the evacuation of wounded. Hearing there were several wounded in a village which was being heavily shelled, he organized parties and cleared the village.

Captain and Brevet Major Arthur Walker, R.A.M.C.

He established forward dressing stations and continued to work in them until forced to move by the immediate proximity of the enemy. He was repeatedly working in the open under heavy fire, no protection being available. He undoubtedly saved many lives which would have been lost but for his courage and initiative.

Second Bar to Military Cross.

Captain (acting Major) Frank Grahame Lescher, M.C., R.A.M.C.(S.R.).

When his camp was heavily shelled he had the wounded removed, and attended them in the open for six hours. Again, during the night, when the transport was bombed, he proceeded to the scene and extricated the wounded men and attended to them, although the enemy continued to shell the position. (M.C. gazetted October 20th, 1916. First bar gazetted August 16th, 1917.)

Temporary Captain Clarence Randolph Young, M.C., R.A.M.C.

When all the officers of the battalion had become casualties, and his aid post was almost surrounded by the enemy, he succeeded in evacuating many of the wounded in spite of continuous and heavy fire. His energy and disregard for his personal safety inspired all who came in contact with him. (M.C. gazetted November 14th, 1916. First bar gazetted July 26th, 1917.)

Bar to Military Cross.

Temporary Captain George Oliver Fairtclough Alley, M.C., R.A.M.C.

After the troops had retired past his aid post, which was temporarily established in a shell hole, this officer continued to attend to and evacuate the wounded. He was exposed to fire from both sides, but succeeded in regaining the line after having evacuated all the wounded. He thus prevented any of them falling into the hands of the enemy. (M.C. gazetted June 4th, 1917.)

Temporary Captain (acting Major) Bertram Friend Bartlett, M.C., R.A.M.C.

As Battalion Medical Officer, under heavy machine-gun and shell fire, he continuously bandaged wounded. Though early in the day wounded, he stuck to his duties, and his pluck and determination saved many lives. (M.C. gazetted January 1st, 1918.)

Temporary Captain Stanley James Annear Beale, M.C., R.A.M.C.

He worked unceasingly for forty-eight hours at advanced aid posts. As each post in its turn became untenable he moved back to another, all the time carrying on dressing and evacuating wounded, while frequently exposed to machine-gun fire. By his energy he was responsible for saving large numbers of wounded from falling into the enemy's hands. (M.C. gazetted September 26th, 1917.)

Captain John Arthur Bell, R.A.M.C.

He was ordered to replace a medical officer who was wounded, and at once went up through a very heavy barrage, established a dressing station in the open, and showed the greatest coolness and devotion to duty in attending the wounded under very heavy shell fire. He continued his fine work for several days, and was the means of saving many lives. His courage and fine example greatly inspired all ranks with him. (M.C. gazetted September 17th, 1917.)

Captain Hawtrey William Browne, M.C., R.A.M.C.

When an advanced dressing station was cut off by the enemy barrage this officer made a very plucky attempt to reach it. Later, when, owing to losses amongst battalion medical officers, he was sent to a regimental aid post, he remained there until the enemy was within 300 yards of it, evacuating all his wounded and coming back with the last case under machine-gun fire. He set a fine example of coolness and resource. (M.C. gazetted January 10th, 1917.)

Temporary Lieutenant (acting Captain) William Kealty Campbell, D.S.O., M.C., R.A.M.C.

During a withdrawal, after a long march, he took over the advanced evacuation of the wounded, and having visited the whole line, made his dispositions. Next day he visited all regimental medical officers under machine-gun fire. He showed great energy and determination. (M.C. gazetted January 18th, 1918.)

Captain Harry Edmund Creswell, M.C., R.A.M.C.(S.R.).

After an intense bombardment with gas shells a village was ordered to be cleared. He was one of the last to leave, and, though he himself was very badly gassed, he continued to work until he had done everything for the casualties that lay in his power, and was ordered to the field ambulance. (M.C. gazetted August 16th, 1917.)

Temporary Captain John Polson Davidson, M.C., R.A.M.C.

While in charge of forward bearers, by his cool courage he was largely instrumental in getting away all wounded under heavy shell fire. His consistent devotion to duty set a splendid example to all his party. (M.C. gazetted January 1st, 1918.)

Captain Thomas McNaughton Davie, M.C., R.A.M.C.(S.R.).

When battalion head quarters were practically surrounded, and he saw that he could be of no further use, he made his escape, and after all the officers of the battalion had become casualties, he remained with the men in the open throughout the fighting on that and the following day. The next day he again went into action with the remnants of the battalion in a counter-attack, rendering excellent service. His cool self-possession and devotion to the wounded under very heavy fire did much to steady all ranks. (M.C. gazetted January 1st, 1918.)

Captain (acting Major) Fred Ellis, M.C., R.A.M.C.

During an enemy attack when the enemy had approached within 200 yards of his advanced dressing station he ordered his personnel to withdraw, and remained at his post under heavy shell fire with a few men to care for the wounded. When a bridge over which the cases were evacuated was destroyed, he evacuated by hand-carry to a point a mile distant, and he managed to salve his two ambulance cars. His services were of a high order. (M.C. gazetted November 26th, 1917.)

Temporary Captain John James Harrower Ferguson, M.C., R.A.M.C.

He went forward in charge of bearer squads, under machine-gun fire, to find a regimental aid post with which contact had been lost. When there he showed great disregard for personal safety, and set a fine example to the bearers, and did not leave the post until all the casualties had been evacuated, although the enemy was almost in the immediate vicinity. (M.C. gazetted September 13th, 1918.)

Captain Frank Percy Freeman, M.C., R.A.M.C.
During an enemy attack, though wounded by a shell, he first attended to others wounded by the same shell. Later, he accompanied his commanding officer through a heavy barrage of high explosives and machine-gun fire to the corps line, where he stayed for two hours attending to wounded. (M.C. gazetted November 4th, 1915.)

Temporary Captain (acting Major) Hugh Bernard German, M.C., R.A.M.C.
While in charge of stretcher-bearers he supervised the evacuation of wounded from the front line to the advanced dressing station, often under heavy shell fire. Also, he continuously dressed wounded in a dressing station unprotected from shell fire. (M.C. gazetted February 4th, 1918.)

Temporary Captain (acting Major) Robert Masson Greig, M.C., R.A.M.C.
For about a fortnight throughout prolonged fighting he worked with but little sleep and food, collecting and carrying in wounded under intense shell and machine-gun fire. During this period he maintained touch with six different battalions, and successfully got away all their wounded. (M.C. gazetted November 25th, 1916.)

Temporary Captain Austin Harvey Huycke, M.C., R.A.M.C.
When the officer in charge of an advanced dressing station and several of his orderlies were killed or wounded, he went forward and took charge of the station, and by his courage and energy under heavy shell fire succeeded in getting away the cases. He saved many lives. (M.C. gazetted June 3rd, 1918.)

Temporary Captain Edmund Basil Jardine, M.C., R.A.M.C.
Though his dressing station was blown up by shell fire, and when transferred to another place was again shelled, he steadily continued his work. He gallantly made several journeys to the regimental aid post under extremely heavy fire, and located and disposed of all casualties collected there. His zeal, courage, and untiring energy were beyond all praise. (M.C. gazetted December 11th, 1916.)

Temporary Captain James Huntly Legge, M.C., R.A.M.C.
When acting as bearer officer during a raid he established a post in the front line, which came under continuous and heavy barrage. Hearing there were wounded in front, he several times led squads of bearers through the barrage and brought in wounded. It was largely due to his magnificent efforts that the clearing was successfully accomplished, and only two men were missing. His energy and devotion to duty were the means of saving many lives. (M.C. gazetted February 18th, 1918.)

Temporary Captain George Edwin Lindsay, M.C., R.A.M.C.
Not only did this officer carry out his professional duties with a cheerfulness that inspired all ranks, but on two occasions, regardless of personal danger, he continually attended wounded in the open under heavy machine-gun and rifle fire, only withdrawing when ordered to by his commanding officer. (M.C. gazetted September 26th, 1917.)

Temporary Captain Frederick Buick McCarter, M.C., R.A.M.C.
During a severe engagement this officer established an advanced dressing station within 200 yards of the front line, where for forty-eight hours, continuously under heavy fire, he attended to the casualties and arranged for their evacuation. (M.C. gazetted February 4th, 1918.)

Captain William Hilgrove Leslie McCarthy, M.C., R.A.M.C.(S.R.)
This officer, hearing that an aid post was filled with wounded who could not be evacuated by the normal route, owing to the enemy bombardment, led a party of stretcher-bearers through heavy shell fire and reorganized the evacuation. He dressed four wounded men in the open on the way up, and made several journeys during the day. (M.C. gazetted January 14th, 1916.)

Temporary Captain Daniel McKelvey, M.C., R.A.M.C.
In evacuating the wounded he went to and fro with a small ambulance car right up to the firing line, meeting the stretcher-bearers and bringing back wounded as soon as dressed. In spite of the heavy fire he carried on with his well-organized arrangements. Later, whilst looking for a new dressing station, he was captured, but managed to make good his escape. Throughout the operations he displayed great energy, and his work was magnificent. (M.C. gazetted July 18th, 1917.)

Temporary Captain George Boyd McTavish, M.C., R.A.M.C.
Throughout nine days' operations he worked continuously in charge of the bearer division, and refused to be relieved. He went to and fro superintending the clearing of the wounded, quite regardless of the many barrages through which he had to pass, and no doubt saved many lives by his untiring zeal and coolness. (M.C. gazetted October 29th, 1916.)

Captain John Wright Malcolm, M.C., R.A.M.C.(S.R.).
During an enemy attack he was at an advanced dressing station with another medical officer, and seeing the enemy advancing they loaded their car with wounded and, picking up others on the way, conveyed them to a safe place. During the journey he was under close and constant fire. (M.C. gazetted January 10th, 1917.)

Captain Duncan Westlake Pailthorpe, M.C., R.A.M.C.
He collected wounded under fire after a raid, working till daylight. He then went out in broad daylight, established the fact that a man reported missing was dead on the enemy's wire, and brought him in from within ten yards of the wire. (M.C. gazetted September 22nd, 1916.)

Temporary Captain Reginald Thompson Raine, M.C., R.A.M.C.
He attended the wounded under heavy rifle and shell fire, and superintended their evacuation. By his devotion to duty he set a fine example to all ranks. (M.C. gazetted January 18th, 1918.)

Captain John Elvin Rusby, M.C., R.A.M.C.(S.R.).
During an intense bombardment an artillery dug-out was blown in. This officer with his stretcher-bearers dug out two officers and three men who were buried. Later, he went to an exposed flank to attend to wounded men under heavy fire. Throughout the whole week's operations he worked untiringly, and undoubtedly saved many lives. (M.C. gazetted September 26th, 1917.)

Captain (acting Major) Arthur Ashton Smalley, M.C., R.A.M.C.(S.R.).
For his skilful and bold leading of the stretcher-bearers, and in evacuating the wounded. By his devotion to duty under the heaviest fire he was always an inspiring example to his men. (M.C. gazetted January 26th, 1917.)

Captain (acting Major) Charles Nixon Smith, M.C., R.A.M.C.
This officer was in charge of an advanced dressing station and the collection of wounded from two infantry brigades for four days. By reconnoitring and frequent visits to his posts he was able to keep in touch with the rear aid posts, and to vary his arrangements according to the casualties. He administered the advanced dressing station in a building with little protection, which was repeatedly hit by shells. His scheme for evacuating the wounded worked well, and a large number of casualties were quickly got away. (M.C. gazetted December 17th, 1917.)

Temporary Captain James Williamson Tocher, M.C., R.A.M.C.
On several occasions he showed great organizing skill under very trying conditions. During the attack of a brigade he worked at and between two posts, and succeeded in evacuating all the wounded. His coolness and devotion to duty throughout were a splendid example to the officers and men working under him. (M.C. gazetted June 18th, 1917.)

Captain William Joseph Webster, M.C., R.A.M.C.(S.R.).
He got up to a collecting post and supervised the evacuation of the wounded under direct enemy machine-gun fire. His ambulance car had most of its body blown away and the radiator perforated. In spite of this, by plugging the holes with candle grease, he was able to bring the car back through the heavy barrage with eight wounded men. He showed fine devotion to duty. (M.C. gazetted January 1st, 1918.)

Military Cross.

Lieutenant Joseph Adams, R.A.M.C.(S.R.).
He dressed and attended to wounded in an aid post under heavy shell fire, and later organized stretcher parties and got wounded away under heavy fire.

Temporary Captain Douglas Reid Alexander, R.A.M.C.
He constantly attended to wounded under heavy shell fire, working day and night for six days at very high pressure. He showed a fine example of coolness and courage to all, and by his perseverance the lives of many were saved.

Captain Francis Dighton Annesley, R.A.M.C.(S.R.).
When a report was brought to head quarters of a brigade that the cookhouse of the battery had been struck, and that there were many killed and wounded men inside, he immediately left his aid post and went forward to see what assistance he could give. Whilst going up, a shell struck the remaining portion of the cookhouse, partially burying the occupants. He personally assisted in extricating the men, dressed their wounds on the spot under heavy shell fire, and got them away safely to the dressing station. His promptness and courage were undoubtedly the means of saving several lives.

Captain Frederick Stanley Bedale, R.A.M.C.
This officer was working at an aid post in a village, a portion of which was captured by the enemy. He remained until the last possible moment, only leaving when all wounded had been evacuated. He then established an aid post in the open, working unceasingly day and night, being the only medical officer left in the area, and his staff greatly reduced. His attention to the wounded, at grave personal risk, was most praiseworthy.

Captain Francis Lionel Percy Garnett Bennett, R.A.M.C.(S.R.).
Seeing that wounded men were in danger of becoming prisoners, he obtained ambulance cars, and three times personally took them away under heavy shell and machine-gun fire. On the last occasion he was himself wounded, but he sent his last car away full and struggled on on foot until he met with assistance. He had been working continuously for forty-eight hours previously.

Temporary Lieutenant (temporary Captain) John Hamilton Boag, R.A.M.C.
When his aid post was occupied by the enemy he hastily established himself in a new position and rendered valuable assistance. He several times went fearlessly out under machine-gun fire and brought in casualties, and by his devotion saved many lives.

Temporary Captain (acting Major) Cecil Anderson Boyd, R.A.M.C.
He repeatedly attended to wounded under heavy shell fire, and on several occasions was compelled to evacuate his aid post, succeeding each time in removing all his wounded, often across country, and by his fine judgement and tireless energy saving a large number from falling into the enemy's hands. His conduct throughout was excellent, the conditions being exceptionally hazardous and trying.

Temporary Captain Harold Francis Brice-Smith, R.A.M.C.
This officer displayed great gallantry during ten days' severe fighting, attending to wounded men under severe hostile artillery fire. He was himself wounded in the arm at an early stage, but with unselfish devotion he remained at his duty throughout the operations, rendering most valuable service night and day, although suffering great pain from his injuries.

Captain (acting Major) George Allman Bridge, R.A.M.C.(S.R.).
This officer, who was in charge of a forward dressing station and bearer posts, hearing that one had been blown in, proceeded at once with a N.C.O. through a heavy barrage and rescued the injured men, conveying them to a place of safety. After establishing another post he filled up shell holes at a cross-road to enable motor ambulances to pass.

Captain (acting Major) Charles Frank Burton, R.A.M.C.(S.R.).
In his skilful leading of the stretcher-bearers on all occasions he has always shown great coolness under the heaviest fire.

Captain Charles Hope Carlton, R.A.M.C.(S.R.).
He took an ambulance car into a village after the enemy had entered it, and succeeded in clearing several wounded in the face of heavy machine-gun and rifle fire. Throughout operations he showed great energy and devotion to duty under very difficult conditions.

Temporary Captain (acting Major) Philip Carney, R.A.M.C.
In leading motor ambulance wagons up to a village under heavy fire and bringing away the last of the wounded. He showed on many occasions a splendid example of devotion to duty under most difficult conditions.

Captain Gerald Francis-Carr, R.A.M.C.
Although the advanced dressing station of which he was in charge was shelled out three times, by his coolness and example he got all the patients and personnel safely away and re-established his dressing station without interrupting the evacuation.

Temporary Captain Clifford Cuthbert Chance, R.A.M.C.
When a heavy barrage interrupted communications between regimental aid posts and relay posts he reorganized his squads and led them through the barrage, cleared all the wounded and re-established the chain of evacuation. He has repeatedly led his squads through heavy fire and gas shell, and has by his magnificent example of devotion to duty maintained the moral of tired and shaken bearers.

Temporary Lieutenant Charles Clyne, R.A.M.C.
He worked for twenty-four hours in a barn under machine-gun and shell fire, and evacuated over 200 cases. Two days later, under heavy shell fire, he continued to evacuate wounded. His devotion to duty saved many lives.

Temporary Lieutenant George Carter Cossar, R.A.M.C.
This officer, who was medical officer of the battalion, performed his duties with the greatest coolness under heavy fire and gas shelling for four days, attending to the casualties with great devotion to duty, although on one occasion he became unconscious from gas. He was twice wounded, but remained at his work, though suffering all the time from the effects of gas. His gallant conduct and disregard for his own safety set the finest example to his men and maintained the steadfastness of the workers in the regimental aid post during many dangerous periods.

Temporary Captain Douglas Crellin, R.A.M.C.
He remained at an advanced dressing station till all the wounded were clear, in spite of the enemy's approach, and the rain of gas and high explosive shells.

Captain Spencer Stawell Crosse, R.A.M.C.
Thanks to his untiring efforts in tending wounded under heavy fire, no wounded were left in the enemy's hands.

Captain (acting Major) John William Dale, R.A.M.C.
He collected and evacuated many wounded from close up to the enemy's lines. Also he completed evacuation of all wounded from an advanced dressing station when the enemy was within 200 yards. He showed fine courage and determination.

Temporary Lieutenant David Davies, R.A.M.C.
He organized bearers and attended to the wounded. He took forward the stretcher-bearers in a counter-attack under heavy shell and machine-gun fire to within a few yards of the enemy and collected all wounded.

Temporary Captain (acting Major) John Edgar Davies, R.A.M.C.
While in charge of stretcher-bearers he evacuated wounded over ground heavily shelled in full view of the enemy. Although several of his bearers were wounded, he showed a personal disregard for his own safety, and set a fine example to his men.

Captain Donald Gordon Duff, R.A.M.C.(S.R.).
He proceeded to an area that was being heavily shelled, and at once organized stretcher parties, superintended the conveyance of wounded to his dug-out, and returned to make certain that no casualties were left. His coolness and devotion to duty throughout have been most marked.

Temporary Captain George Dunluce Eccles, R.A.M.C.
While evacuating wounded from the firing line, although obliged to retire on four separate occasions, he with great skill and resourcefulness cleared all his wounded safely. His complete disregard of danger was entirely responsible for a completely successful evacuation under circumstances of considerable difficulty.

Captain (acting Major) Thomas Stokoe Elliot, R.A.M.C.
This officer was unremitting in superintending the dressing of the wounded during four days' fighting. He was in charge of three advanced dressing stations, each of which was in turn destroyed by enemy shell fire, but he managed to evacuate all the wounded. Officers, personnel and patients were all encouraged by his cool example.

Temporary Captain John James Harrower Ferguson, R.A.M.C.
When a brother officer was buried amongst a mass of bricks as a result of a shell having struck his billet, this officer, hearing his cries for help, discovered his whereabouts in the darkness, and after four hours' work, although the place was being heavily shelled the whole time, succeeded in extricating him.

Captain (acting Major) William Haig Ferguson, R.A.M.C. (S.R.).
When the advanced dressing station was completely destroyed by shell fire, and every one was ordered to take cover, this officer left his dug-out and carried several wounded, unaided, some hundred yards to safety, passing through a zone of gas and heavily-shelled area. He did the same thing again later on.

Captain (acting Major) Robert Alexander Flood, R.A.M.C.
With the enemy within 300 yards of a divisional rest station he got a car loaded with wounded and took those who could walk and one stretcher case across the fields. Although knocked down by a high explosive shell, he finally got them to shelter.

Temporary Captain Augustin Pownall Fry, R.A.M.C.
He went from place to place across the open, under heavy machine-gun, rifle, and shell fire, to attend to the wounded. His absolute fearlessness undoubtedly saved many men from bleeding to death. Throughout he displayed devotion to duty of a high order.

Captain (acting Major) Henry Norman Goode, R.A.M.C.
He was in charge of the bearers collecting wounded, and frequently visited his posts under very heavy shell fire. He organized the evacuation of the casualties from the regimental aid posts to the advanced dressing station, frequently being obliged to alter his routes and establish new relay posts, owing to the heavy shelling. It was largely owing to his courage and energetic ability that the removal of the wounded was carried out in such a speedy and efficient manner.

Captain Francis Hennessey Goss, R.A.M.C.(S.R.).
This officer worked all night in the open in front of the line, under heavy fire, dressing the wounded and carrying them back to safety. His temporary aid post was captured and his staff made prisoners, but he made his way back through the enemy lines alone. The following night he made many journeys into the open, carrying wounded on his back to temporary shelter. His devotion to duty saved many lives.

Temporary Captain (acting Major) Frank Cyril Greig, R.A.M.C.
He was in charge of the advanced dressing station for five days, working under very heavy fire the whole time, organizing the disposition of his bearers. When the post was almost completely destroyed by shell fire some of his men were buried in a dug-out, and he worked with unremitting energy under heavy shell fire to get them out.

Temporary Captain Charles Hope Haddow, R.A.M.C.
When the enemy drove the line back to battalion head quarters he kept his aid post established until they were within 200 yards, and succeeded in evacuating all wounded. Later, during a counter-attack, he showed untiring energy in dressing and evacuating wounded under very trying conditions. He showed fine devotion to duty.

Temporary Captain Alfred Ernest Hallinan, R.A.M.C.
When his aid post was surrounded by the enemy, he got through to battalion head quarters, reported on the situation, and established an aid post there, where he evacuated a large number of wounded. Later, he worked for hours at another aid post while the enemy were within a few hundred yards. He displayed great energy and efficiency.

Temporary Captain Chester Harris, R.A.M.C.
When the enemy was attacking in large numbers he, in spite of the heavy shell and intense machine-gun fire, succeeded in clearing all the wounded, and three times went back through heavy barrage to dress and carry in wounded men. His conduct was admirable.

Captain (acting Major) John Henderson Hunter, R.A.M.C.
He was in charge of advanced dressing stations, which were continually shelled.

Captain Arthur Edward Huxtable, R.A.M.C.
For conspicuous gallantry and devotion to duty in carrying on the evacuation of wounded under heavy shell fire. He made several journeys under extremely heavy fire, and located and disposed of all casualties. His zeal, courage, and untiring energy were admirable.

Captain George Kingsley Edwin Inman, R.A.M.C.(S.R.).
Hearing that the infantry were heavily engaged, he obtained permission to go forward and help them. He found that the position was being heavily shelled and that the regimental medical officer had been killed. He at once assumed medical charge of the battalion, and, though the infantry had retired, twice took stretcher-bearers back to the position, and thus rescued many wounded who might otherwise have been captured.

Temporary Captain Charles George Lambie, R.A.M.C.
He tended wounded under intense hostile barrage, constantly going out into the open and bringing wounded in. On a later occasion he went from battery to battery under heavy shell fire, dressing the wounded and getting them away to the nearest ambulance. He was several times hit by shell splinters.

Temporary Captain John Gagen Lee, R.A.M.C.
He attended to casualties under very heavy machine gun and shell fire continuously for four days. He was wounded on the second day, but remained at duty. He had his dressing station blown up twice. Each time new stations were reorganized very quickly. He behaved splendidly, and his conduct was a very fine example to all.

Temporary Captain (acting Major) Francis Charles Lees, R.A.M.C.
For forty-eight hours, while in charge of the arrangements for the evacuation of wounded, he worked unceasingly in an advanced dressing station, and owing to his courage and energy a large number of wounded were cleared from the forward area under most difficult circumstances.

Temporary Captain Sidney John Liddon Lindeman, R.A.M.C.
For ten days he worked unceasingly, tending wounded under heavy fire, saving many lives. On one occasion, under intense machine-gun fire, he still continued dressing and collecting wounded, and his complete disregard of danger set a fine example to those under him.

Temporary Captain (acting Major) John Wycliffe Linnell, R.A.M.C.
He dressed and evacuated wounded under shell fire during five days' operations. On two of the days, at great personal risk, he cleared wounded from villages which were being shelled.

Temporary Captain Vernon Edmund Lloyd, R.A.M.C.
While in charge of stretcher-bearers he worked for hours under shell fire, evacuating wounded; and in an advanced dressing station exposed to shell fire he dressed and evacuated a large number of wounded.

Temporary Captain George Albert Lyons, R.A.M.C.
During four days' heavy fighting he worked unceasingly. When the regimental aid post was heavily shelled, he organized a carrying party and removed all men incapable of walking. He was the cause of saving many lives.

Captain James McLean Macfarlane, R.A.M.C.
This officer, while a town was being heavily bombarded, frequently entered it to attend to the wounded who required surgical aid before they could be evacuated. Later, he attended to the wounded and evacuated them to the casualty clearing station for three days, working day and night, and when compelled to leave owing to the heavy shelling, took his party to man a bridge over a canal, carrying on until ordered to leave just before the bridge was blown up. He was responsible for the saving of many lives.

Temporary Captain James David Mackinnon, R.A.M.C.
During very heavy fighting he attended to the wounded in the open under machine-gun and rifle fire. He showed fine courage and saved many lives.

Temporary Captain Kenneth Duncan Cameron Macrae, R.A.M.C.
He constantly attended to wounded under machine-gun and shell fire. He also maintained an aid post on the line of the enemy's artillery barrage. By his devotion to duty many lives were saved.

Captain (acting Major) Alexander Cross Mallace, R.A.M.C.

When in charge of advanced dressing stations, he worked continuously under shell fire, and when our troops had to retire he remained to clear his last cases until the enemy was within 100 yards.

Captain (acting Major) William McCombie, R.A.M.C.(S.R.).

He repeatedly visited, under very heavy fire of all descriptions, the aid posts he was engaged in clearing, personally conducting his bearers with complete disregard for his own safety in those localities where the fire was most heavy. Under very trying circumstances he showed great devotion to duty.

(To be continued.)

D.S.C.

AMONG the honours awarded for services in action with the *Goeben* and *Breslau*, on January 20th, 1918, the Distinguished Service Cross is bestowed upon Surgeon James M. Harrison, R.N. (H.M. Monitor "M28").

A wounded man having fallen into the water, Surgeon Harrison went in after him and kept him afloat until picked up. It was due to his untiring efforts that eight severely wounded cases arrived in good condition at the hospital ship twenty-two hours later.

The Distinguished Service Cross has also been bestowed upon Surgeon Probationer George E. Strahan, R.N.V.R., for services in action with enemy submarines.

FOREIGN DECORATIONS.

The King of Serbia has conferred the following honours upon officers of the A.M.S. and R.A.M.C.:

Order of the White Eagle, 2nd Class.—Lieut.-General Sir Alfred Keogh, G.C.B., G.C.V.O.

Order of the White Eagle, 4th Class.—Lieut.-Colonel Charles H. Straton.

Order of St. Sava, 3rd Class.—Temporary Colonel Leonard S. Dudgeon, C.M.G., Lieut.-Colonel Claude B. Martin.

Order of St. Sava, 4th Class.—Temporary Captain Robert Cunyngham Brown, temporary Captain Norman S. Carmichael, Captain Basil Hughes, temporary Lieutenant Arthur R. Jennings, temporary Captain Thomas W. Edmonston Ross, temporary Major John W. Struthers.

Order of St. Sava, 5th Class.—Temporary Captain Joseph T. Carson, temporary Lieutenant Arthur F. Martin, Captain George S. Davidson (S.R.), temporary Captain Frederick P. Wigfield.

The King of Italy has conferred the following honours upon officers of the A.M.S. and R.A.M.C.:

Order of St. Maurice and St. Lazarus.—Officer: Colonel Thomas du Bédat Whaite, C.M.G., A.M.S. Cavalier: Major George W. W. Ware, D.S.O.

Order of the Crown of Italy.—Officer: Colonel Robert W. Wright, C.M.G.

Italian Bronze Medal "della Salute Publica."—Captain John J. H. Beckton.

The King of the Belgians has conferred the Croix de Guerre on Staff Surgeon Henry Cooper, D.S.O., R.N.

The King of the Hellenes has appointed Staff Surgeon James Campbell Bringan, R.N., an officer of the Order of the Redeemer.

NOTES.

CLINICAL LABORATORIES IN THE U.S. ARMY.

THE *New York Medical Journal* of August 24th states that every division of American troops already has, or will have, attached to it a mobile clinical laboratory provided with a bacteriological outfit, where diagnostic examinations can be made. Every base, general and special hospital will also have its clinical laboratory as soon as the staff and equipment can be provided. To secure uniformity in the methods of examination and the forms of reports the Division of Infectious Diseases and Laboratories of the Surgeon-General's office has compiled a *Manual of Laboratory Methods* which describes the collection and shipment of specimens and materials, and gives an account of solutions and stains to be used in the laboratory, with standards and a summary of the pathological work, and the quantitative analytical and bacteriological methods to be followed. The principal function of the army laboratory is said to be the safeguarding of the health of the troops by making rapid and accurate diagnoses of infectious and other diseases for the guidance of the division surgeon and his staff in regard to prophylaxis and treatment.

TRENCH FAUNA.

The various forms of animal life that infest the trenches form the subject of a thesis recently presented to the University of Bordeaux by Dr. Génevray. Of the three varieties of lice the *Pediculus capitis* is less common than the *P. vestimentorum*. In the German trenches occupied by the French the lice are numerous, and are said to be of larger size than the ordinary kind. The picturesque fancy of the *poilu* finds a distinguishing mark of the Boche louse in the "iron cross" which he professes to see on its back. The destruction of these parasites is a long business, requiring minute attention to detail, as reinfection takes place very quickly. The agents recommended by the author are sulphur and formol. Rats, though not such a nuisance as lice, are still distinctly *mauvais coucheurs*. Little is seen of them during the day; their hunting time is the night, when they scamper over the bodies of sleepers in dug-outs and bite their hands when they try to sweep them off. They are very fierce and fight "bitterly," as the communiqués say, among themselves. As rats are carriers of plague their destruction is a matter of vital importance. For this purpose the cat is of comparatively little use; the fox terrier is much more efficient. Various preparations of arsenic and other poisonous substances are also successful. But, according to Dr. Génevray, the best agent is the vaccine made by Danysz of the Pasteur Institute; it produces in the rat a contagious gastro-enteritis which causes death. The destruction of flies, mosquitos, and fleas is difficult. As regards scabies, men suffering from that complaint are sent to special centres established not far from the front lines.

Scotland.

REPRESENTATION OF THE SCOTTISH UNIVERSITIES IN PARLIAMENT.

THE Right Hon. Sir Henry Craik, K.C.B., M.P., and Sir W. Watson Cheyne, Bt., K.C.M.G., M.P., have accepted the invitation of the Unionist Association of the four universities of St. Andrews, Glasgow, Aberdeen, and Edinburgh to become the official Unionist candidates for two of the three seats now allotted to the group of the four universities at the next general election.

We are asked to announce that, in consequence of the reconstitution of University representation in the House of Commons, and in view of the probability of a general election, a Scottish Universities Parliamentary Association has been formed, with the following as executive officers: Chairman, Professor Sir Thomas Oliver, M.D., D.Sc., LL.D.; honorary secretaries, Professor W. J. R. Simpson, C.M.G., M.D., and Dr. Ellen B. Orr. The offices of the new association are for the present situated at 37, Russell Square, London, W.C.1.

THE CRICHTON ROYAL INSTITUTION.

In the report of the Crichton Royal Institution, Dumfries, for 1917, Dr. C. C. Easterbrook, the physician-superintendent, deals with many matters of interest and importance. Among these reference may be made to his observations on a new category of "service patients," soldiers and sailors who, having served during the present war, have been admitted to an asylum owing to mental illness (whether due to or aggravated by military service or not) and have been officially recognized by the Minister of Pensions as being entitled to be placed on the list of private patients. Dr. Easterbrook considers that the "service patient" should be classified as such before he is sent to a mental hospital for treatment, and that the hospital should be selected beforehand in consultation with the patient and his wife and relations. Dr. Easterbrook congratulates the Government on a wise and practical solution of a difficult problem, and on the decision to remove the opprobrium of pauperism from the mentally afflicted soldiers and sailors. He takes advantage of the occasion to urge that similar justice should be done to the larger class of the ordinary "pauper" insane, whose affliction is essentially a health question, and not a necessary part of poverty.

The report contains a very interesting table showing the results of treatment for the ten years 1908–1917; its outstanding feature is the larger proportion of recoveries among the "voluntary" than among the "certificated" patients, the excess in favour of the former amounting to 11 per cent. Dr. Easterbrook has adopted Dr. Thurnam's principle of basing the recovery-rate on the admissions, but points out various circumstances which modify the character of the "total admissions" at the present time, especially the constant interchange of patients to and fro between the mental hospitals and the outside community and between the hospitals themselves. Accordingly he distinguishes admissions into two groups according as each patient has or has not during the existing illness previously been under official care.

A remarkable feature of the statistics is the large proportion of voluntary boarders. Only private patients can be admitted in this way; during the ten years 69 per cent. of the patients were certificated and 31 per cent. were voluntary. The total number of patients received as voluntary boarders during ten years was 393, a number large enough to warrant some general conclusions. Taking only the cases admitted which had not been under official treatment previously during the illness the recovery-rate was 43.1 per cent. among the certificated and 53.4 per cent. among the voluntary patients. The voluntary boarder system has long been utilized as far as possible at the

Crichton Institution, and in the report for 1914 Dr. Easterbrook discussed the whole question very fully, making a strong plea, for which he will have wide support, that the privilege should be extended to rate-aided or public patients, and arguing against a system compelling a patient to gain admission only by being classed as both a "lunatic" and "pauper." He rightly insists that mental illness, like other illnesses, is primarily a derangement of health and not a necessary part of poverty, nor an offence, nor a crime, and he suggests that the local health authority would be the more appropriate department to take the initial steps in dealing with rate-aided mental invalids.

A Clinical Course in Venereal Disease.

Under the local authority scheme for the diagnosis and treatment of venereal diseases, Dr. D. Watson, lecturer on venereal diseases in the University of Glasgow, will conduct a course of clinical instruction for medical practitioners, from Monday, September 30th, to Friday, October 11th, at 2 p.m. each day. The class will meet on Mondays, Wednesdays, and Fridays at the Glasgow Royal Infirmary, and on Tuesdays and Thursdays at 41, Rottenrow, Glasgow. The course is free, but as the number who may attend is limited, early application should be made to the medical superintendent, Royal Infirmary, Glasgow.

England and Wales.

A Ministry of Health.

At the annual conference of the National Union of Holloway Friendly Societies, held at Stroud on September 14th, Mr. P. Rockliff, Chairman of the London Insurance Committee, referring to the announcement made some time ago by Dr. Addison that he had effected an agreement with regard to the proposed Ministry of Health, said that such agreement no longer existed: the Committee on Home Affairs, to which the bill had been referred by the War Cabinet, had since made such alterations in the draft measure as to render it quite unacceptable both to the friendly societies of the country and to all the county and borough Insurance Committees. The conference passed a resolution of protest against the introduction of any bill for the establishment of a Ministry of Health which proposed to associate the work of the Ministry with Poor Law relief. Sir Kingsley Wood condemned the delay in the introduction of the Government measure, but said there were now high hopes that the Prime Minister's indictment of health conditions at Manchester on September 12th implied the early introduction of the bill. If it were not introduced next session it would become a test question at the election, and the twelve million women voters would plump for the Ministry. The bill itself would be a short one; it was an urgent war measure which the Government should deal with immediately.

Work of the Metropolitan Asylums Board.

The twentieth annual report of the Metropolitan Asylums Board, for 1917, has been issued, and, like its three predecessors, it appears in a much abbreviated form. The Board has had great difficulty in getting a sufficient number of staff, and at the end of the year there were something like 600 vacancies. Many expedients were tried, but the national demand for woman labour was so large that small success was attained. Fortunately, infectious disease, which has always affected the requirements of the staff more than any other class of illness, was not severe in its incidence. It has at length been decided by the Local Government Board that the accounts of the Metropolitan Asylums Board shall be made up yearly instead of twice a year as hitherto. Annual accounts are nowadays the custom in nearly every branch of accounting, whether commercial or other, and the ancient practice of making up half-yearly accounts is deservedly in abeyance. The total number of persons admitted into the institutions of the Board (excluding war refugees) was 35,808, which is 1,202 fewer than in the previous year. The admissions of cases of infectious disease were 20,246 in number. As the result of representations made to the managers by the Local Government Board, arrangements were completed during the year for the reception of cases of parturient women at Thavies Inn Infirmary, under the control of the guardians of the City of London.[1] Further arrangements are being made to provide accommodation in two separate hospitals, one in the north and one in the south of London, for the hospital treatment of certain cases of ophthalmia neonatorum. The report includes a brief summary of the routine work done during the year in the bacteriological laboratories, but it is noted that the research work, which for some years past has been conducted at the Lister Institute by the Board's research pathologist, has temporarily ceased owing to the claims of military service.

Correspondence.

PARLIAMENTARY REPRESENTATION OF THE UNIVERSITY OF WALES.

Sir,—The University of Wales is to elect a member of Parliament. Every friend of the university must desire that the constituency, which will be at the best a small one, should be as large and representative as possible, and that no ground should be afforded for suspicion that Welsh graduates fail either to appreciate the privilege or to discharge the duty they owe to their university and to Wales. There is evidence that many have not realized that any action on their part is necessary in order to find a place on the register, whereas they must apply for registration and pay a fee of 5s. I have made many attempts to communicate with them and, as the matter is one of public interest, I shall be greatly obliged if you will allow me to make one more by appealing to them through your columns to communicate with me immediately.—I am, etc.,

J. Mortimer Angus,
Registrar.

University Registry,
Cathays Park, Cardiff, Sept. 11th.

THE FUNCTION OF THE CARDIAC VAGUS.

Sir,—Without pretending to throw any further light on the problem of inhibition, it seems to me that most of the confusion around it, referred to by Mr. Morley Roberts in the British Medical Journal of September 14th, p. 302, was cleared up by the classical experiments of Joseph Lister, communicated to the Royal Society in a letter to Dr. Sharpey (then secretary), received August 13th, 1858, entitled, "Preliminary account of an inquiry into the functions of the visceral nerves, with special reference to the so-called inhibitory system," published in the *Proc. Roy. Soc. of London*, 1859, pp. 367–380.

This paper attracted the close attention of Mr. Hugh Owen Thomas, and was taken into account in his pamphlet on nerve inhibition in his contributions to *Surgery and Medicine*, Part viii, January, 1883, p. 5, which appears to have been a successful attempt to discuss the question from a clinical standpoint, in the light of his personal experience, fortified by Lister's illuminating research.

The writings of H. O. Thomas may be seen in the Library of this Association, and in that of the College of Surgeons of England.—I am, etc.,

Liverpool, Sept. 16th. Rushton Parker.

THE ABUSE OF DRAINAGE TUBES.

Sir,—I have to thank Dr. Samways for his valuable criticism of my paper, and my old teacher, Mr. Dowden, for his appreciation. I am glad to say that I am steadily converting my colleagues here, and a drainage tube is used in our hospital only in exceptional circumstances—that is, drainage of a cavity with rigid walls, such as a bone cavity—and it is an unusual sight to see a drainage tube used, so I think King Edward VII Hospital, Windsor, may claim to be the first hospital to give up the use of drainage tubes. I know that after the war, when so many surgeons will return to their hospitals, they will also have given them up. Every surgeon will remember instances of a drainage tube causing the death of a patient either by ulceration or kinking of the bowel. I can vividly recall

[1] British Medical Journal, January 12th, 1918, p. 59, and July 27th, 1918, p. 92.

such a calamity, a gunshot wound penetrating the abdomen, which occurred to me in France, and I am quite sure had I known what I do now and sewn his wound up instead of using a drainage tube, that this man would have been alive now. I quite agree with Mr. Dowden that I should have mentioned this danger of ulceration or kinking of the bowel by a drainage tube. I completely forgot it, but it is the most real and serious danger of a drainage tube. Strangely enough, within a few days of the publication of my paper I was asked to see as an emergency the case of a colleague of mine. He had been operated on the evening before for empyema. When I saw the case he had a steady haemorrhage which had been going on all night. I opened him up quickly and found the cause of the bleeding was coming from a big hole in his lung which had been made by each respiratory movement pushing the lung up against the rigid drainage tube. With packing and open treatment he made an uninterrupted recovery.

I have dealt with five cases of empyema by lavage and sewing up and am pleased with my results, and propose shortly to write a paper on the subject. As regards thymol paraffin wax, I have had several inquiries from France and America as to the composition. For internal application—for example, filling up a bone cavity—I use two parts paraffin molle to one part wax and 2 per cent. thymol. For the treatment of large superficial wounds I use equal parts paraffin molle and wax with 2 per cent. thymol, and find it is a good and comfortable dressing.

Messrs. Mayer and Meltzer are making for me a passage tube of soft rubber made ready in lengths. All that is necessary to do is to sterilize and cut off such lengths as are required.—I am, etc.,

Windsor, Sept. 16th. FRANK HATHAWAY.

MEDICAL MISSIONARIES.

SIR,—In your Educational Number you give some particulars of the increasing opportunities which present themselves for the work of medical missionaries.

The difficulties created by the war have made it exceedingly difficult to carry on the mission hospitals of the Church Missionary Society in the many fields in which it is at work. Twenty-eight out of our all too small staff of doctors are on war service, and others have served for shorter periods in the R.A.M.C. Its missions in Palestine and Turkish Arabia were naturally closed on the outbreak of war with Turkey, and its European workers with difficulty escaped from the country. In spite of terrible damage to property some hospital work has been restarted, at the request of the British authorities, for the benefit of the civilian population of Palestine. In Bagdad at the outbreak of war a new hospital was in process of erection, and there also it is hoped soon to reopen work.

The Mission Hospital in Uganda has played an important part in military operations in East Africa, and in other places the war has helped to prove the vital importance of these mission hospitals.

Perhaps, however, few things are more remarkable than the way in which missionary doctors from China are participating in the medical care of the Chinese who are labouring in France, where they are supported by Chinese dressers trained in the mission hospitals, including doctors trained at some of the missionary medical schools.

These facts indicate the urgency of the missionary problem, which will be greatly accentuated after the war, and it is hoped that many men and women who are now engaged in war service will realize the call to take part in this great work, which cannot fail to influence large areas in many parts of the world.—I am, etc.,

CHARLES F. HARFORD,
B.E.F., France, Sept. 2nd. Captain R.A.M.C.

Universities and Colleges.

UNIVERSITY OF LONDON.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

THE following awards have been made:

Burney Yeo Scholarship: A. D. Porter, B.A., Pembroke College, Cambridge; H. L. Rayner, B.A., Balliol College, Oxford. Senior Scholarship, Tanner Prize, Todd Prize and Medal: L. M. Moody, M.R.C.S., L.R.C.P. Class Prizes: Surgery and Psychological Medicine, A. N. M. Davidson; Obstetric Medicine, H. Kamal; Forensic Medicine, H. N. W. Collins; Hygiene and Diseases of Children, E. A. Crichlow.

The Services.

TRANSFERS TO THE ROYAL AIR FORCE MEDICAL SERVICE.

A RECENT Army Order announces that on October 1st next all medical officers and other ranks of the Royal Army Medical Corps employed exclusively with the Royal Air Force will be transferred or attached to the Royal Air Force unless prior to that date they give notice of objection to such transfer or attachment. Medical officers and dental surgeons holding temporary commissions will be required to relinquish their temporary commissions in the R.A.M.C. or General List respectively. In the case of an officer serving under a yearly contract which has not expired a *pro rata* gratuity will be issued. Officers of the Regular, Special Reserve, or Territorial Force R.A.M.C., will be attached to the Royal Air Force, and will continue to serve on the conditions of their present terms of service.

Medical News.

DR. J. S. CRONE, J.P., Deputy Coroner for West Middlesex, has been adopted as prospective Liberal candidate for the new division of West Willesden, in which he has practised for thirty-five years.

THE presentation of the Shrieval Chain and Badge to Colonel and Sheriff-elect William R. Smith, M.D., will be made by Alderman Sir William Treloar, in the absence of the Earl of Athlone, Chairman of the Presentation Committee, at 12 noon on Thursday, September 26th, at the Apothecaries' Hall, Water Lane, Queen Victoria Street, E.C.4.

THE Gresham Lectures on Physic will be delivered by Sir Robert Armstrong-Jones at Gresham Hall, Basinghall Street, at 6 p.m. on November 12th, 13th, 14th, and 15th. The public will be admitted without tickets.

THE annual distribution of prizes at Charing Cross Hospital Medical School (University of London) will take place in the out-patients' hall at the hospital, on Tuesday, October 1st, at 3 o'clock.

THE Royal Sanitary Institute will hold a discussion at the Audit House, Southampton, to-day (September 21st), at 11 a.m., on infant welfare work, to be opened by Lieut.-Colonel H. R. Kenwood, C.M.G., Chadwick Professor of Hygiene, University of London.

THE Académie des Sciences has awarded the Montyon prize to Drs. Henri Guillemard and André Labat, of Paris, for their researches on asphyxiating gases. The prize is of the value of £100.

THE Government of the Republic of Cuba has presented to the Italian Red Cross through Dr. Antonio Martin Rivero, its Minister Plenipotentiary at Rome, the sum of £14,414 for distribution among the families of soldiers who have died in the war and men who have been invalided.

SENATOR COUNT GIUSEPPE FRASCARA has been named by royal decree President-General of the Italian Red Cross, in the room of Count Della Somaglia, who died recently of typhoid fever. The new president at various times represented Alessandria in the Chamber of Deputies, and became a Senator in 1910.

TWO women psychologists, Dr. Mabel Fernald and Dr. Margaret Cobb, have been appointed to the Army Medical Department at Washington. According to Major R. M. Yerkes, of the Psychological Division, trained women can be used for the highly specialized work of handling the army reports and may eventually be called upon to help with work in special hospitals dealing with cases of reconstruction.

IN a recent report the French Minister of Commerce called attention to the fact that the cultivation of medicinal plants, which was formerly a very active industry in France, has rapidly fallen off in the last half-century. Before the war the value of the imports of medicinal plants, mainly from Germany and Austria-Hungary, was estimated at tens of millions of francs. The Minister has therefore set up a committee for the purpose of organizing and intensifying the cultivation, gathering, and preparation of medicinal plants.

THE Board of Trade announces that the Order in Council authorizing the standard uniform for the mercantile marine can be purchased at the price of 1d. a copy through any bookseller or directly from H.M. Stationery Office, Imperial House, Kingsway, London, W.C.2; 37, Peter Street, Manchester; 1, St. Andrew's Crescent, Cardiff;

23, Forth Street, Edinburgh; and from E. Ponsonby Limited, 116, Grafton Street, Dublin. This Order contains detailed particulars of the uniform which has been approved by the King. It is an offence under the Defence of the Realm Regulations for any unauthorized person to wear the uniform, or any uniform so nearly resembling it as to be calculated to deceive; or for any person falsely to represent himself to be a person entitled to wear the uniform.

THE Local Government Board has issued an order, dated September 6th, 1918, amending the Public Health (Tuberculosis) Regulations, 1912, so as to provide for the notification of any case of tuberculosis discovered at examinations undertaken by National Service medical boards, to the medical officer of health of the sanitary district in which the man resides. The notification of the case will be made by the chairman of the medical board, or by some member of the board designated by him. The fee for each notification will be 1s., but no fee will be payable to any person holding a commission in any of His Majesty's Forces and receiving pay in respect thereof.

IN an editorial note on the Ministry of Health in the *British Journal of Ophthalmology*, August, 1918, the opinion is expressed that "most of the discussions which have as yet taken place have given evidence of much unpractical theorization and of divergent or even mutually destructive principles. They have been lacking in the responsibility of constructive statesmanship, which is wholesomely restrained in its architectural experiments by the necessity of making its bricks out of the materials which are available. Hence it would be wise for the medical profession to come down to earth and start seriously to work. . . . Now, the first requirement of political organization is proper representation of sectional interests. Our own branch of medicine has recently set up a body, the Council of British Ophthalmologists, which is intended to be truly representative. Time alone will show whether this aspiration is justified, but if it is, public bodies, whether governmental or otherwise, have in this council an authoritative source of information on all matters relating to the public welfare which involve questions of ophthalmological interest." Finally, the opinion is expressed that other branches of medicine might well follow the lead of the British ophthalmologists.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

BOOKS FOR PRISONERS OF WAR.

SIR ALFRED T. DAVIES, K.B.E., of the British Prisoners of War Book Scheme (Educational), informs us that, largely owing no doubt to the capture of many thousands of British and Colonial prisoners by the Germans since last March, the requests for books have of late enormously increased. The organization, of which he is chairman and honorary director, exists to provide British prisoners of war interned in enemy or neutral countries with books for the purpose of study. He will gladly furnish information about the work to inquirers. Communications should be addressed to him by name at the office of the scheme, Victoria and Albert Museum, South Kensington, London, S.W.7, the words "Prisoners of War" being written in the bottom left-hand corner of the envelope. No catalogue is issued of educational works needed for prisoners, but almost any book is permissible if it does not refer to the war. Among the headings we note anatomy, biology, chemistry, medicine, physics, physiology, and zoology. Offers of books of all grades, in good condition and up to date, are invited.

MANGANESE A POISON.

DR. JAMES GAIRDNER, M.O.H. Crieff, calls attention to the inclusion of manganese among the poisonous metals in the new edition of *Nomenclature of Diseases*. Twenty-three years ago Dr. Gairdner, in one of his annual reports, expressed the view that manganese is injurious to health.

ANTIVERMIN UNDERCLOTHING.

IN view of the proved association between trench fever and lice, we have had several inquiries from battalion medical officers as to where antivermin underclothing may be obtained for themselves or their men. We know that Mrs. Arnold-Forster's War Work Dépôt (Registered), Highbury Street, Portsmouth, makes a feature of preparing antivermin suits for distribution by officers at the front, and also to individual applicants. They are made of butter muslin dipped in a solution of lysol (℥ij to the pint), and are intended to be worn next the skin. The price is 2s. 6d. a suit. After washing and drying, the garments can be redipped in a solution of the same kind.

AN ENDOWMENT FOR LITHOTOMY.

In *Paris médical* of August 17th Dr. A. Satre of Grenoble gives an account of a curious volume containing a collection of ordinances and regulations made in Lorraine in the reign of Louis XV. He found it in an old château of Lorraine where he had installed his ambulance at a distance of some kilometres from the enemy's lines. It bears date 1769. Among its contents is a decree of the sovereign court of Lorraine and Bar concerning a foundation in the Lunéville hospital by Stanislas Leczinski, King of Poland, Duke of Lorraine and Bar, and father-in-law of Louis XV, for the gratuitous cutting for stone of poor patients belonging to the two provinces. The operation was to be done twice a year, at the beginning of May and September. Parish priests and local officers were enjoined to take strict precautions to prevent abuse by giving certificates of poverty too easily. Patients were to be admitted, cut, fed, nursed, and treated with medicines gratuitously till perfectly cured.

AN OLD NOTE-BOOK.

DR. NASH (Sydney, N.S.W.) writes: As a young man, newly returned from abroad with a university degree, it was my lot to start practice in a colliery district near Newcastle and to work there for about nineteen years. Looked back at, those days, weeks, months, and years of a very strenuous professional life are regarded without regret except in respect to my own shortcomings. It was my custom to write up daily, in books, notes of midwifery cases, urine examinations, special examinations, and operations, without thought other than to be thorough in my work. Was the labour expended worth while? From the £ s. d. point of view, no. But in mid-April of this year, eighteen years after leaving Wallsend for Sydney, a woman came to me for advice. She said: "You attended me when my only child was born. I had convulsions at the time." Referring to my note-books, the following was found in the Urine Book: "Mrs. ——. Pale yellow; sp. gr. 1019. Reaction: Acid. Heat (boiling): No change. Heat + acetic: A faint cloud. Liq. pot.: No appreciable change. Liq. pot. + boiling: Much flaky material. HNO_3 (cold): Greenish coloration extending halfway up column of urine, a ring of pink colour surmounting the greenish. *v.* Mid. Book No. 1199 and Albuminous urine (26-11-94)." The notes in this book told of a case of puerperal eclampsia with albuminuria.

To me the mental satisfaction derived from perusal of the notes written in November, 1894, and January, 1895, were sufficient reward for whatever trouble they gave me in the making. There is hope within me that the recording of them will be beneficial to my patient of to-day. It is interesting to know that the son born on November 26th, 1894, 'midst a nerve storm and a tempest of muscular commotion, sequel to an auto-poisoning maternal blood, has in the present war gained the Victoria Cross, and gave his life for the Empire in his 23rd year.

THE Chief Inspector of Factories announces that the appointments of certifying factory surgeons for Dumbarton and for Dingle (Kerry) are vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
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An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive poste *restante* letters addressed either in initials or numbers.